The MINING CONGRESS JOURNAL

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Preliminaries to Coal Regulation

Hearings on Immigration and Taxation

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Legislative Review

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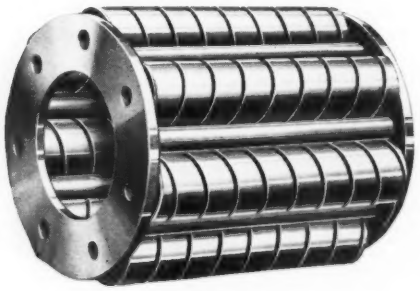
If you have any knocks, send them along with the boosts, for we want the truth.



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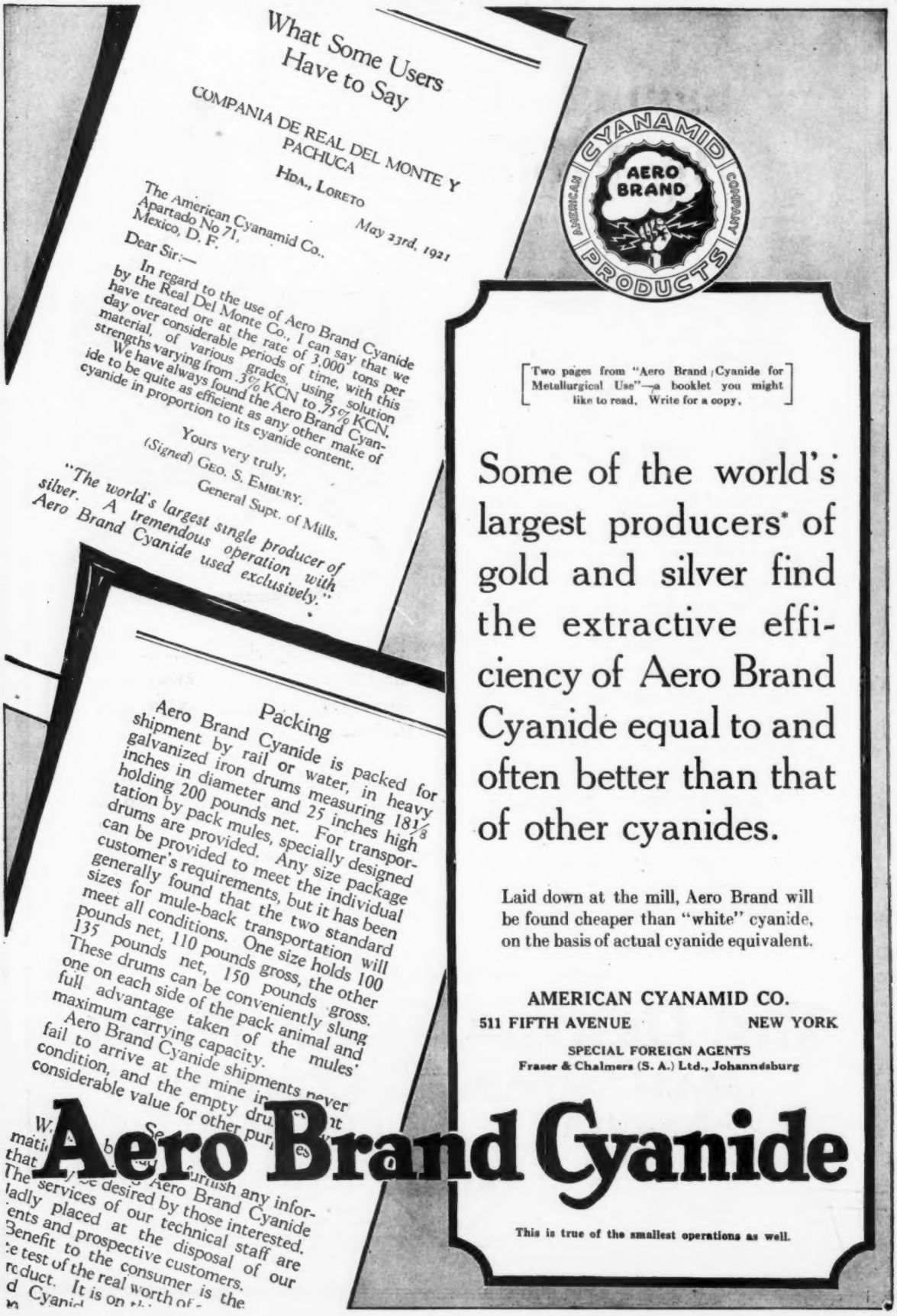
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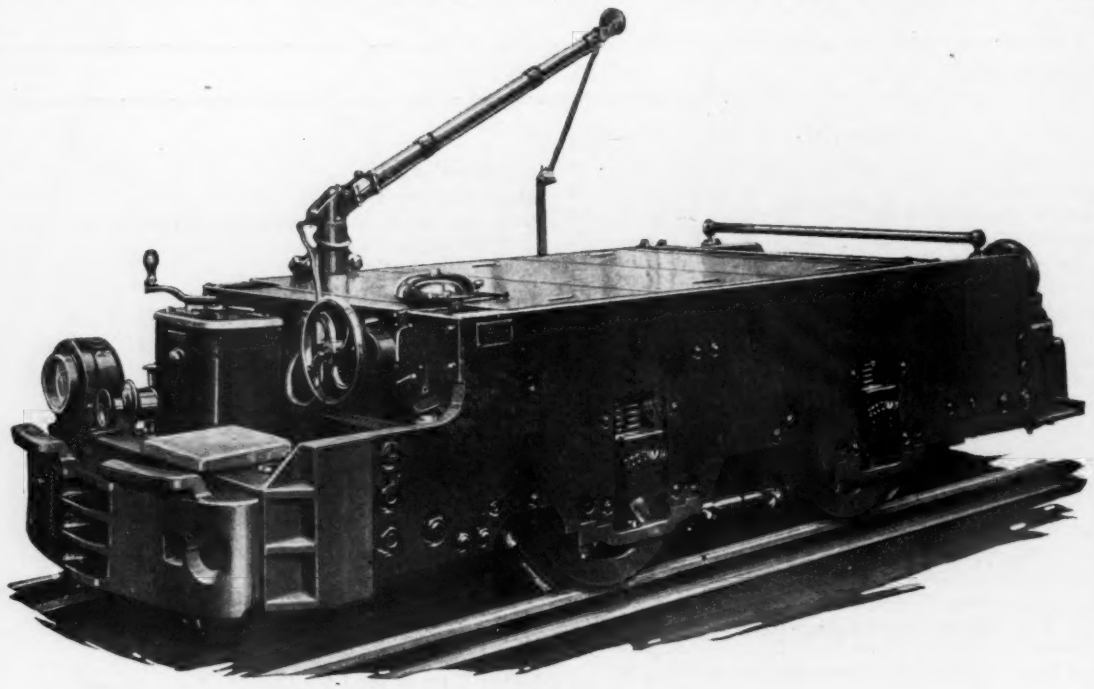

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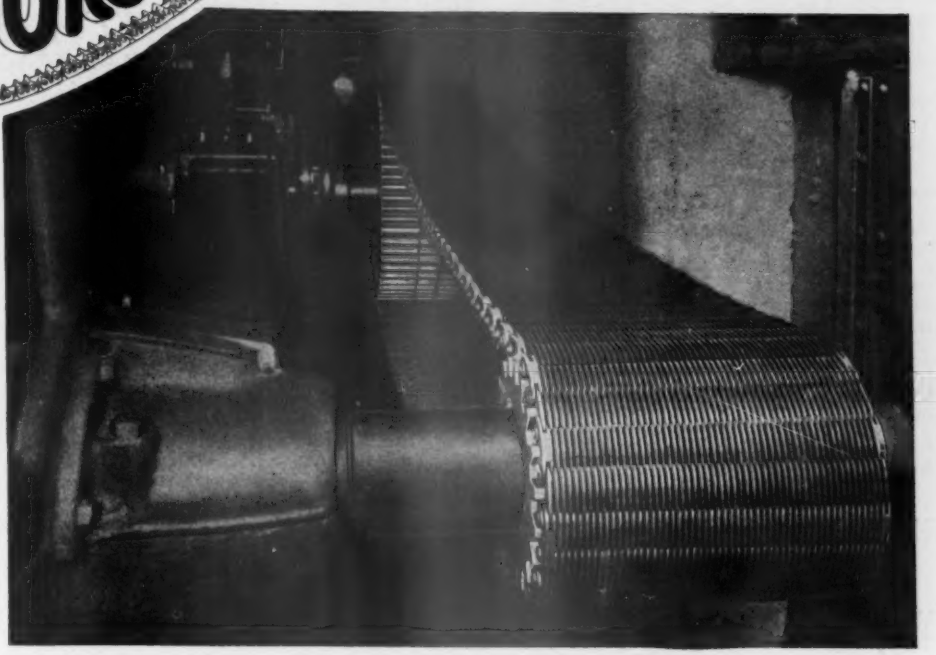

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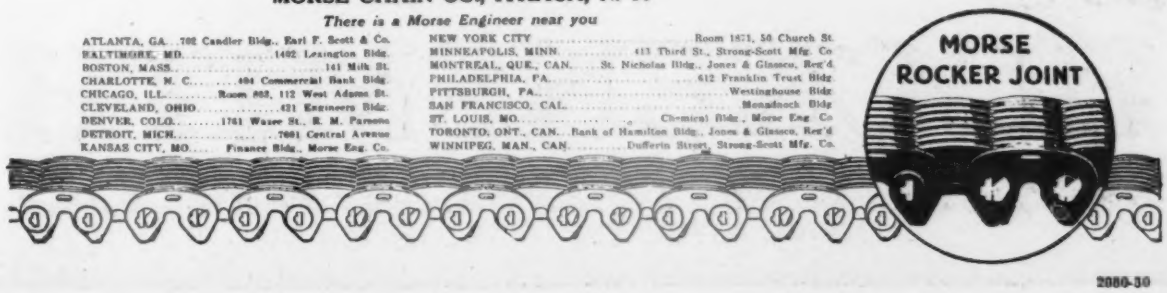

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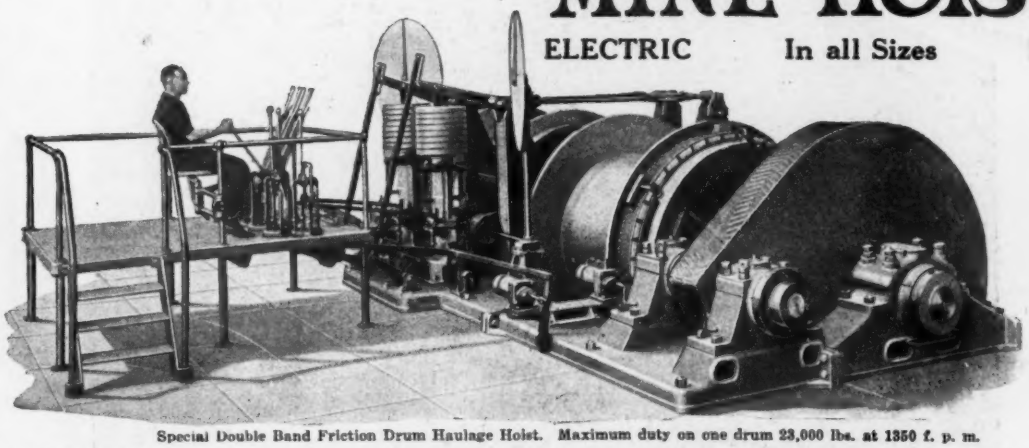

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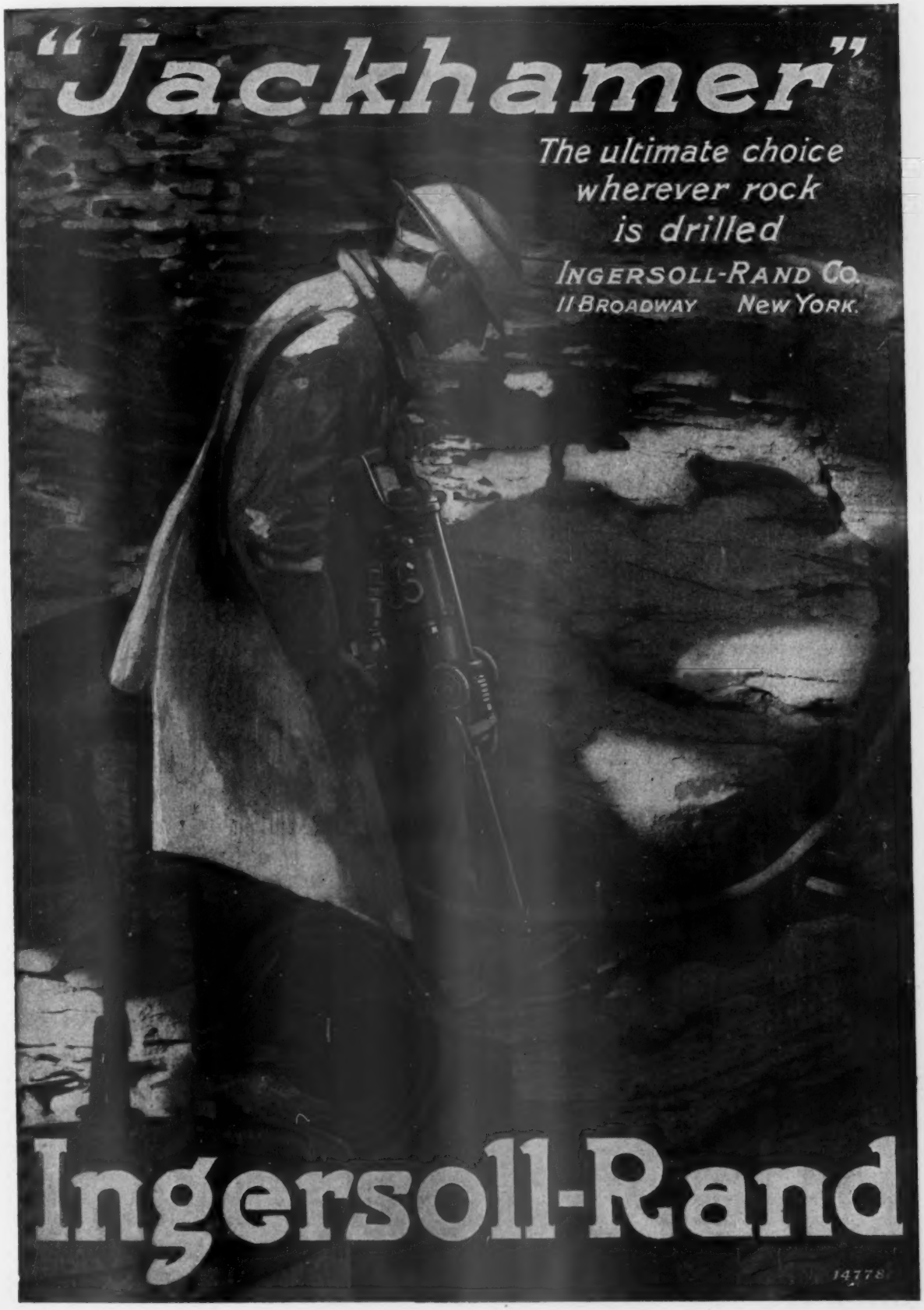
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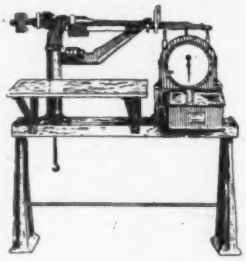

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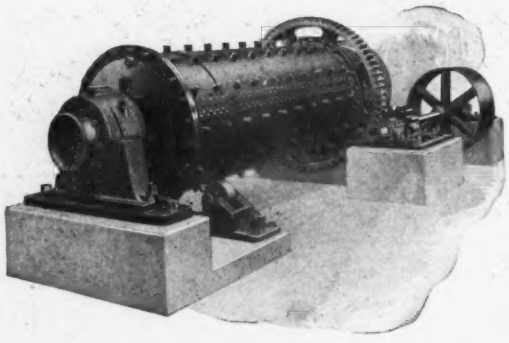

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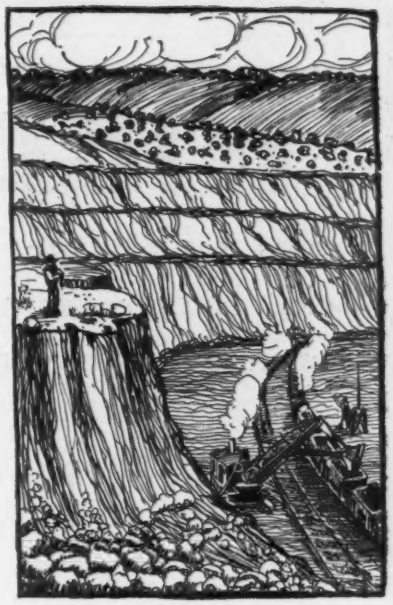

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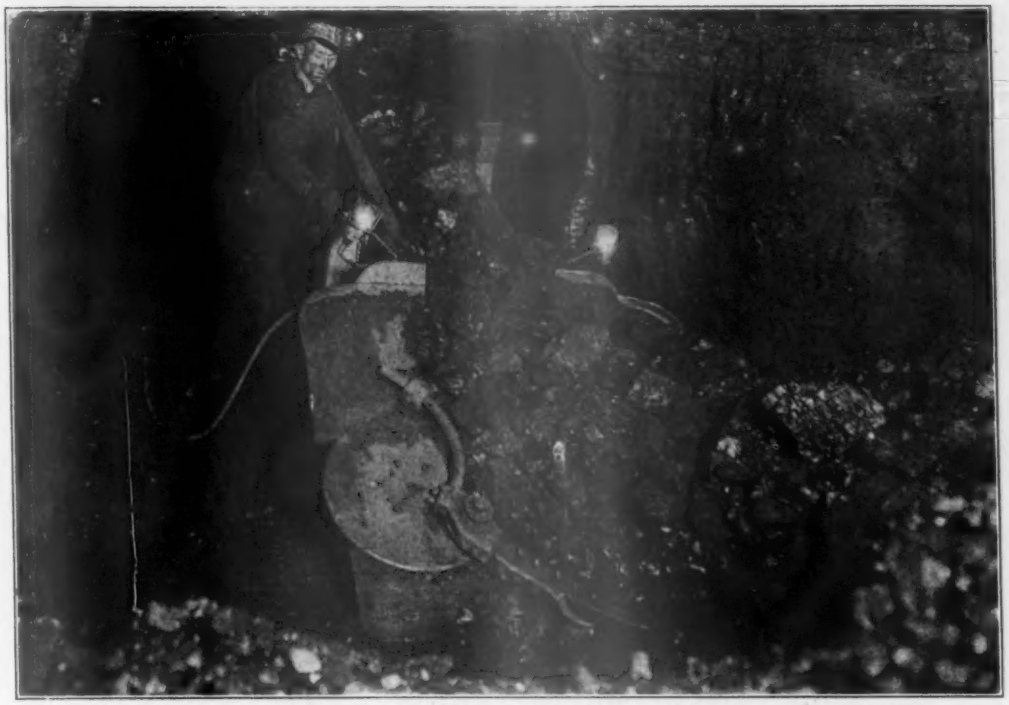

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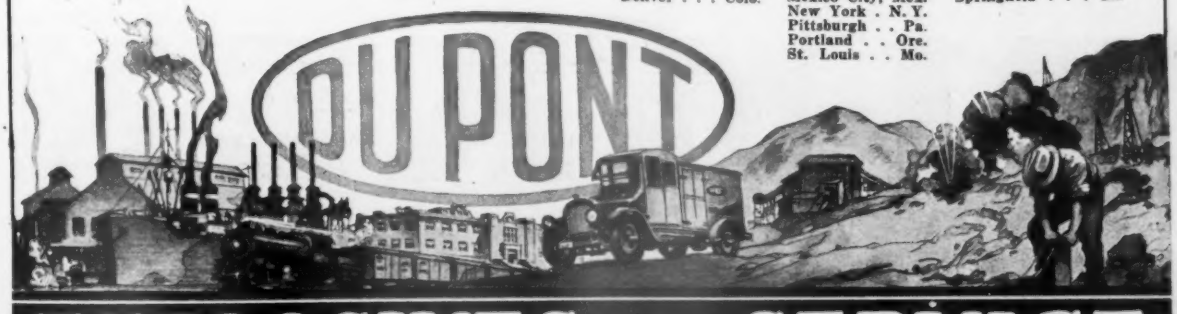

EXPLOSIVES ~ SERVICE

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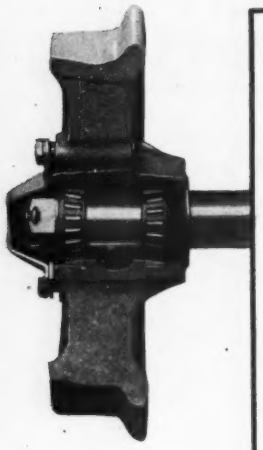

A TRAIN of cars, heavily loaded, strikes a curve. The combined weight of the mine car itself and the load it is carrying is thrown sideways against wheels and axles. That is end thrust—a force which in time has a destructive effect on the moving parts.

If the car is equipped with bearings designed to carry this load as well as weight up and down (radial load), much grinding wear and a great part of the friction resulting from cars being pulled around a curve is done away with—permitting more cars per train.

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On the straightaway, too, thrust loads are continually developing, from the flange of the wheel pressing against the rail, from the taper of the wheel tread, from irregularities in the road bed, from the wearing down of the inner edge of the rail. All these throw a terrific strain on the wheel bearings. Wear results unless they are Dual Duty Bearings.

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In The Crucible

AS we go to press, the United Mine Workers of America is in session to frame, among other things, the demands which it will make on the bituminous operators this year. The outcome of this meeting is, for the first time in a generation, of very little consequence to the coal industry and the American people.

It is taken for granted that a mass convention of something like 2,500 men, brought together to legislate concerning their own incomes, will not reach any conclusion except that those incomes should be continued on their present level, or increased. They will demand, of course, that other advantages won by long struggle shall be held. Men who thus unite to arrange for their own future may be relied upon to take care of themselves.

However, the time has passed when the Miners' Union can write its own ticket and when the Nation must pay the bill for which that ticket calls. The necessities of the Nation now have to be considered and have to be used as an offset for the exactions of this organization.

The public has become informed that it is no unusual thing for this organization to collect from three million to five million dollars per year to defray its regular expenses. It is known that at times, by special assessment, it can raise as much as two million dollars a month. The public has come to understand that an organization which exacts so much of its members must pay dividends to those members which justify the outlay. That dividend is and must be tremendous.

The Coal Commission's report, unfortunately, does not show to the American people the situation as it actually is. It does hint at it, in a way. Still, in the absence of any concrete statement, the people cannot possibly realize what has been going on.

The report shows, for example, that from 1900 to 1907 the wage contracts were made annually. The effect of these annual agreements nowhere has been stated with precision. But, it is indicated that the wage increase in each contract period was better than 2½ percent per year. Thus this wage rise was compounded annually.

The Coal Commission's report also indicates that since 1907 there had been practically seven biennial wage contracts. In each of these the miners obtained further increases in wages. It is almost impossible to reduce this to an exact statement, but it is conservative to say that the increase has averaged 5½ percent biennially, compounded biennially.

The net result of these various increases has been a minimum wage for unskilled labor of $7.50 a day, and a wage schedule for skilled workers which ranges between $12 and $20 a day, to those who work no more than five hours a day, under ordinary circumstances, and wages which range as high as $40 a day—or on the basis of $15,000 a year—for those who have favorable conditions and who will work the eight hours prescribed by the agreement.

In addition, the union has obtained another dividend for its outlay. This takes the form of a tremendous increase in what might be called the social department. That is, the work of the miner has been made very much easier by the division of the work into specialties; by the delegation of different groups or gangs to do special things; and by the employment, by the operator, of helpers for the miners. In a little more than twenty years the work once done by the so-called practical miner has been divided by eight.

Also the miners have succeeded in passing on to the public a very considerable part of those living expenses ordinarily paid by the average individual out of his own pocket. For instance—and leaving out of account the question of occupational insurance—the operators have built elaborate towns with excellent houses, having all modern conveniences, which rent today at a price suggestive of mere shelter from storms. This real estate, at such rentals, stands the operator a loss. That loss is charged into the cost of coal production and passed on to the consumer. The consumer, therefore, pays his own bills for housing and a substantial part of those of the miner.

In the same category comes the paving of streets in mining towns, building of sewers and water systems, the erection and maintenance of schools, building of hospitals, the employment of community doctors and nurses, the erection and maintenance of amusement centers, and the provision and maintenance of athletic fields and playgrounds for adults and minors alike. All of these things are paid for by the operating companies, charged against the cost of coal production and passed on to the consumer, who thus pays his own bills for such things, plus all of those which the miner should pay out of his own purse.

These social items alone, if properly accounted for, would reach a total exceeding the cost, compounded, of the increases in wages given the miners.

These bills have become so high that the public refuses to pay them. Therefore what the miners may declare in convention about an increase, or a retention of these advantages, loses its significance in the light of the new demands of the public. That is to say, the large consumers of coal are refusing to make contracts with operators whose mines are unionized. They are taking their business, on the contrary, to the non-union fields to an ever-increasing extent. In the non-union fields the miners are going voluntarily to their

employers to say that what they want is work, and that they are willing to discuss with the operator that schedule of wages which will assure the sale of his coal and give them the work as against the union field.

With these things in the background, the demands of the miners are unimportant. The demands of the public and the attitude of the non-union miners are the things worthy of consideration. That means to say that with a non-union field extant, and with competition remaining alive, the mere existence of a miners' union and a convention of union miners cannot abrogate the law of supply and demand.

THE GOLD STANDARD

THE continued concentration of gold in the United States is developing a serious danger to the maintenance of the gold standard. No country can maintain a gold standard without a semblance of gold upon which it may be supported. No single country can maintain a world standard. In normal times the United States held little better than one-fifth of the world's monetary gold stock. At the beginning of 1923 she held approximately one-half of the world's gold reserve. During the year 1923 approximately three hundred million dollars worth of gold was imported into this country. There is a grave danger in this situation. With the maintenance of a world gold standard the larger amount of gold any one country can control the better it is for that country. But if its accumulations become so great as to destroy the gold standard elsewhere it has made valueless the temple which it has reared and will grow to be like the miser who starves while counting over his hoard of gold.

No nation in the world is better equipped than the United States to live entirely within its own boundaries and to maintain a high degree of comfort for all of its citizens, entirely cut off from communication with the rest of the world. But this fact does not justify or make desirable a policy of isolation. We may live better and at the same time enjoy the satisfaction of the performance of substantial world service by proper relations with other countries. We must remember that gold is the money of the world, that money is the lifeblood of commerce, that without commerce and industry, starvation and want and ignorance follow. And we must not lose sight of our responsibility in the control of that lifeblood of commerce which is a necessary element in the prosperity, liberty and the life of the peoples of the world.

GOVERNMENTAL INTERFERENCE AND COAL PRICES

EXECUTIVE control and management are essential to efficiency. No business ever did succeed where authority for its control was divided between several agencies. Even a bad plan well carried out is altogether more effective than an efficient plan improperly executed. We know of no exception to the rule that "A divided house cannot stand." There is no better illustration of the truth of this adage than the present condition of the coal industry. For many years this country was furnished with bituminous coal at a lower price than available anywhere else in the world and at a price so low as to bankrupt many coal mining companies and almost bankrupt the whole coal industry. For five years prior to the great war the average selling price of coal at the mines in the United States was $1.11½ per ton. During this period the cost of labor and supplies for each ton of coal produced amounted to approximately 96 cents. This ruinously low price for coal was brought about by unlimited competition between companies forced to operate to preserve their mines and induced to operate at high pressure in order that the overhead charge could be kept at a minimum The average coal company was glad to receive an order for a large part of its output at less than the actual cost of production in order that its mine might be kept running, in the hope that the small part of the production left unsold might be taken by domestic consumers at a profit. During this five-year period, in which the coal mining companies were wearing out their plants, wasting their assets and increasing their indebtedness the great consuming public received its coal at less than actual cost of production, a condition which led the consumer to regard his then privilege of buying coal for less than cost to be a permanent right. He was ever ready to sympathize with the coal mine workers in their demands for increased wages in the belief that in some way the operator would absorb the difference and that the price he paid would remain the same.

During this period various groups of operators were trying to develop means by which they might at least agree among themselves not to sell coal at a loss. The Sherman anti-trust law and the threat of prosecution thereunder prevented the adoption of any plan which would relieve the bankrupting conditions which then existed. At the opening of the war governmental control was thought to be necessary and a coal dictator was selected, who knew nothing of the coal business, who undertook to fix prices, control deliveries and entirely take from the coal operator that control of production which theretofore had given the country an ample supply of coal at ruinously low prices. With this government control came higher coal prices, greater difficulties in securing coal and all of those disturbed conditions which make for higher prices and poor service. Notwithstanding the enormous cost of this government experiment, the consumer has been led to believe that better service will come through governmental interference than through the law of supply and demand. Without governmental interference the immediate future of the coal consumer promises the cheapest possible coal. Without governmental interference the operators have already been forced into the competitive condition which will certainly result in price cutting competition. At this time more than one-third of the bituminous coal mines of the country are closed; some few are operating at a loss and but very, very few at a profit. Those favored companies astute enough to sell their coal in advance and particularly those who have been able to sell on long time contracts on a cost plus basis are the very few who are now in a happy frame of mind.

Non-union fields where an adjustment of wages has been possible are taking the markets from the union fields and are absorbing the increased freight cost of the longer haul. Notwithstanding these critical conditions in the coal industry, Congress is being urged to enact restrictive laws which will further interfere with the orderly conduct of the business. In the meantime, a considerable number of large producing units are being developed by men who anticipate that with still larger operation cheaper unit cost of production may be attained and that with lower priced coal, they will be able to control the market and drive into bankruptcy the smaller units which will not be able to meet competition of mass production. It will be a matter of regret if in the face of all these conditions Congress shall seriously consider the enactment of laws calling for further gov-

ernmental interference in private business affairs. Past experience does not furnish warrant for further interference with the coal industry. If Congress is to act along these lines it would seem wise that it undo the wrongs already done and in the future keep government out of business.

A DIGNIFIED SOLUTION

IN these hectic days of a highly animated Congress, every possible scheme, feasible or unfeasible, is advocated to remedy the real and imagined ills of the mining industry. Possibly one percent of the legislation aimed at mining is constructive. The other 99 percent is obviously destructive.

The reorganization of governmental departments brings to light many conflicting elements. There is a danger that the Bureau of Mines and the Geological Survey will be torn into shreds in the scramble of various agencies wishing to annex certain of their functions. It is eagerly pointed out by these theorists that the Bureau of Standards can with propriety and credit swallow all of the activities of the Bureau of Mines with no detriment to the mining industry.

It is also pointed out that the Geological Survey is largely an engineering institution and that its functions can be distributed among the various existing departments but that its major function shall be taken over by the proposed Department of Public Works.

A National Department of Mines, which is being so actively advocated at this session of Congress, would seem to solve some of these difficulties. At least it would coordinate all mining activities in one dignified department that will give just prestige to the nation's great mineral asset and should simplify many existing difficulties. With the great mass of legislation ahead of it Congress will scarcely have time to seriously consider the creation of a new department. The attitude of the American Mining Congress and the MINING CONGRESS JOURNAL toward a Department of Mines need not be emphasized. It is well known.

STATE TAXES MUST COME DOWN

DURING the last ten years state and local taxes have grown enormously. The public debt, aside from the national debt caused by the war, has increased tremendously. Public expenditures have mounted to a peak where a period of industrial depression with consequent failure of tax laws to yield adequate revenues might easily cause the credit of many state and local governments to topple.

The financial statistics of these governments that are being released by the Bureau of the Census, Department of Commerce, show an abnormal growth of public indebtedness since 1912, an enormous increase in taxes, and a startling tendency toward unrestrained expenditure of public funds.

No war-time or peace-time emergency or other condition in the domestic affairs of the nation can be cited by the officials of state and local governments in justification of this pyramiding of the public debt and tax burdens. State and local governments should have kept expenditures at a minimum and should have prevented the abnormal use of the public credit during the recent period when the resources of the nation have been taxed to the limit to carry national burdens and pay the cost of this country's participation in the World War. The Census statistics indicate that just the contrary was the case.

While the federal government was taxing the nation's resources and using the national credit to meet the greatest national emergency in its history, state and local governments apparently were rushing blindly into debt and attempting to secure as great an amount of revenue from taxation as that exacted by the federal government. Only recently the Governor of Maryland, in a public address, pointed to the amount of taxes paid into the United States Treasury by the taxpayers of his state in justification of increased taxes for state purposes. And his attitude is the same as that of state officials of many other states.

If this is to be the continued policy of state and local governments, when will the maximum be reached in the amount of taxes that will be levied, the debt burden that taxpayers will be called upon to carry, and the expenditures that will be made for the great variety of public projects and public ventures that are being advocated constantly by individuals, blocs and interests who expect to derive private or political profit therefrom?

It is time for the people to call a halt to this sort of management on the part of their state and local governments. The welfare of industry, the conservation of resources, the prosperity of the nation's business enterprises and continued employment for all of the people at a higher standard of wages than prevails in any other country must be held paramount to any private or local advantage which might be derived from increasing the public debt and levying super taxes to develop and maintain projects that can be postponed until conditions more nearly approach normal and the nation's resources can better stand the strain.

THE PROOF OF THE PUDDING

IF the metal schedules of the Fordney-McCumber tariff law need any defense, they will find in the United States Geological Survey a very able defender. Any advocate of free trade as applied to the mining industry will find little solace in the annual reports of this bureau with reference to metal mining. The Survey has a justly deserved reputation of always leaning to the ultra-conservative in its reports. Full meaning therefore must be attached to such optimistic phrases as "value of metal output more than doubled," "unusually large output," "great increase reported," which appear in profusion throughout the estimates.

It is perhaps most significant that in those states where the output has been doubled and the value of the metal increased from 18 to 100 percent the major production comes from those metals given protection under the Fordney-McCumber tariff law. Full credit of course should also be given to the general upward trend of business, but these reports clearly show that many properties that were closed because they could not compete with foreign importation are now reopening, installing equipment, and planning for extensive production during 1924. Gold and silver are the only metals showing a decrease.

The outlook for 1924 for the metal mining industry is indeed encouraging as based upon these reports. A prosperous mining industry means a prosperous nation with labor fully occupied. With the right kind of encouragement mining has never failed to respond. All it asks is a fair chance to compete with those metals that are mined abroad under conditions no one wishes to see established in America.

OUR MUSCLE SHOALS PLATFORM

REMEMBERING the investment of more than $100,000,000 of the government's money in Muscle Shoals; remembering that this expenditure was made out of the money subscribed by the entire citizenry of the United States in the form of Liberty bonds and must be met by the taxpayers of the United States; and remembering that the prime purpose of the entire project was for national security and defense, the American Mining Congress stands squarely on a very definite platform for the future disposition of this vast project. This platform has been outlined in the resolutions passed at its annual conventions. The considerations which should move Congress in its decision on the various proposals before it are, in order of their importance, as follows:

1. National defense—The positive assurance of maintenance of nitrate plant No. 2 in a state of readiness to meet any war-time emergency.
2. Adequate reimbursement in money to the government for its own investment in Muscle Shoals.
3. Development of nitrate for peace-time uses, especially fertilizer, at the lowest possible cost on a sound economic basis.
4. The distribution of water power, under the terms of the Federal Water Power Act, to the widest possible areas for the development of southern industries.
5. Ultimate opening of navigation on the Tennessee river as an important link in the great Mississippi waterway system.

Elsewhere in this issue is given an account of the joint offer submitted by the power companies of the South. This offer embodies many of these vital considerations.

It leaves the title to the nitrate plants undisturbed in the government. Under this offer the government continues to own the power plants. It continues to own them at the expiration of the fifty-year period without restriction on its right to then negotiate for future use.

The government is given a return of $100,000,000 for the fifty-year lease, twice as much as the Ford interests offer and in half the length of time.

An initial reservation of 100,000 horsepower is made for the development of fertilizer.

The distribution of power over the entire South is assured under the terms of the Federal Water Power Act.

The power companies assume the part of the annual charges against headwater improvements in the Tennessee river as determined by the Federal Water Power Commission to be equitable.

We join in the opinion of the Secretary of War "that this plan has many excellent features."

ON RECORD

THE appearance of the American Mining Congress before the House Immigration Committee in their consideration of a national immigration law brought out forcibly that the position of the mining industry in regard to immigration is most thoroughly misunderstood. It was the accepted opinion of members of the committee that the mining industry is in favor of importing hordes of the cheapest possible kind of labor to operate the mines. There could be no more erroneous conclusion concerning the attitude of the mining industry. The files of the American Mining Congress are replete with evidence that this is not the attitude of either the individual mining man or the industry as a whole. The individual mining man has expressed the opinion, which has become the collective opinion of the entire industry, that the needs of industry absolutely must be subordinated to the needs of the nation as such.

Mining men have repeatedly gone on record as favoring restricted and selective immigration. Resolutions have been adopted at the conventions of the American Mining Congress emphatically endorsing selective immigration. Unquestionably the mine operators want a greater percentage of immigrants who are admitted to have a working acquaintance with the business end of the pick and shovel. They want the kind of men who come to this country to work out their destiny and not those the Labor Department has pointed out as such a large percentage of immigrants who come here to scheme out a livelihood.

In this issue of the MINING CONGRESS JOURNAL will be found the statement presented by the American Mining Congress to the Immigration Committee. It is hoped that this presentation will place squarely before the committee and the public the unquestioned position of some 85 percent of the total mining production of the United States.

A SHORTSIGHTED POLICY

PAST generations have dealt with the national timber supply without any recognition of the fact that it takes years to grow a tree. Great areas formerly heavily wooded are now barren and no effort is being made to reforest. The result is that the mining industry is faced with a serious problem concerning its timber supply. In the anthracite coal industry alone more than $10,000,000 is expended annually in timber replacement. It also has been estimated that the amount of timber required for this industry alone would cause annually the destruction of a forest of more than 500,000 trees of more than 1,000 board feet per tree. In the bituminous coal industry operators are finding their timber cost increasing to such an extent that they are faced with the absolute necessity of substituting concrete and steel. The metal mining industry finds its problem in regard to timbers even more serious than the coal mining industry. Their problem differs slightly from the coal industry in that in their search for some method for preserving mine timbers it is necessary that the timbers both be preserved and made fireproof. In the coal industry their product is inflammable; therefore, their problem is largely one of preservation.

The California operators have considered this subject so important that they have volunteered a substantial fund to make a thorough investigation of any method that will protect from fire and resist decay.

The Mine Timbering Sections, Coal and Metal Branches, of the Standardization Division of the American Mining Congress, have been seriously considering this subject for the past two years. In this issue will be found a number of important articles dealing with the subject from the standpoint of preservation of timbers, reforestation, strength of timbers, and a general review of the mine timbering situation covering fifteen states. Mine operators will do well to cooperate closely with the Mine Timbering Sections of the Standardization Division and with the United States Forest Service in their present effort to secure complete data on the mine timbering situation in the United States, as the result of these joint efforts should be of substantial service in solving a serious problem.

CONGRESS AND RAILROAD LEGISLATION

Current Events In Transportation Reviewed—Senate Committee On Interstate Commerce Organized With Chairman From Minority—Transportation Conference Against Amending Transportation Act—Supreme Court Upholds Recapture Provisions

By McK. W. Kriegh
Staff of the American Mining Congress

CONGRESS is now ready to go to work on railroad legislation. The Interstate Commerce Committees of both the House and Senate are proceeding with the consideration of various proposals, including the recommendations of the President. The deadlock in the Senate over the chairmanship of its committee came to an end when an insurgent faction gave its support to Senator Ellison D. Smith, of South Carolina, in preference to having that important post held by any senator who might be considered "safe" in so far as the salient features of the Esch-Cummins Act are concerned.

Meanwhile, the railroads are going forward with their improvement of facilities and service program; the Interstate Commerce Commission is continuing its investigation of grain rates; a national conference on transportation has been held under the auspices of the United States Chamber of Commerce; arguments have been made against the Interstate Commerce Commission's tentative plans for consolidation of railroads; the Supreme Court of the United States has upheld the constitutionality of the socalled recapture clause of Section 15-a of the Transportation Act of 1920; and Senator La Follette has introduced a bill which, he says, provides, for the first time, "a scientific method of fixing railroad rates."

Railroads' 1923 Record

The total number of cars loaded with revenue freight during 1923 was 49,814,970. This exceeds by 10.4 percent the previous high record of 1920. According to the car service division of the American Railroad Association, the number of cars loaded in 1923 in excess of 1920 would make a solid train more than 35,500 miles in length, or a distance equal to once around the earth at the equator with enough left over to extend from New York via the Suez Canal nearly to Hong Kong, China.

The railroads on December 31 had 312,338 surplus freight cars in good repair and immediately available for service. No car shortage was reported at any point. Freight cars in need of repair totaled approximately 140,000, or slightly more than 6 percent of the ownership. New cars are being placed in service daily. New locomotives are being delivered to the carriers as rapidly as they can be assembled. The entire railroad situation shows improvement, but the carriers as a whole are not earning an adequate and fair return on the valuation determined by the Interstate Commerce Commission for rate-making purposes. Herein lies many of the difficulties which the railroads are encountering.

Wheat growers also have been losing money, it is said. Something or someone must be responsible for their plight, according to certain of their self-appointed spokesmen, and the railroads and their freight rates, being the most convenient subjects for stirring orations and facile propaganda, thereupon were saddled with the responsibility. Now, the farmers may have been losing money, but the evidence that freight rates have had anything to do with the situation thus far has lacked convincing probity. Herein lies one of the causes for the dissension in Congress.

In this connection the Bureau of Railway Economics has made public the first of a series of studies with regard to prices of wheat, corn and oats in their relation to transportation costs. This bureau has announced the conclusion that fluctuations in prices paid to the farmer have not been influenced by freight rates. The bureau says: "The results of this study tend to show that in marketing commodities such as wheat, corn and oats, where supply and demand is the measure of competition and where freight rates do not change, the fluctuation of farm prices upward and downward is due entirely to causes beyond the influence of local freight costs."

On January 9 a transportation conference, called by the Chamber of Commerce of the United States, began its deliberations on various phases of the transportation problem. These deliberations were concluded on January 10 with the adoption of a set of declarations indorsing Section 15-a of the Transportation Act; control by the Interstate Commerce Commission over rates; the power of the Commission to correct discriminatory intrastate rates, and recommending a conference of carriers, employes and the public to improve labor relations; a readjustment of class rates where such readjustments have not been made, and only such amendments to the Transportation Act as may be found necessary to facilitate consolidations of railroads. The conference resolutions declared no change should be made in

AT SACRAMENTO

AS the January issue of the Mining Congress Journal went to press the Board of Directors of the American Mining Congress announced the selection of Sacramento, Calif., as the place for the 27th Annual Convention. There is something significant in that "27th." It means that for 27 years the mining industry has gathered in open forum, publicly discussed its problems, passed resolutions, and adopted a program which it believed to be a forward step. The growth of the mining industry during these 27 years is complete evidence of the soundness of the programs outlined by these mining men. In the early stages, only a small percentage of the industry took part in these deliberations. Each year has seen a continuous growth, until the 27th Annual Convention can proudly claim to represent 85 percent of the entire mining industry. Today as never before are there problems confronting mine operators—taxation—state and national; immigration—which reaches to the very fundamentals of our national life; industrial relations—that affect so vitally our future prosperity. These, to mention only three major problems out of the many confronting mine operators, will be discussed at Sacramento. Not only the serious side will receive consideration, but Sacramento has pledged a full portion of western hospitality.

Mark the date down now—Sept. 29 to Oct. 4.

any important provision of the act until it had a fair trial, which, as yet, had not been given it.

The report made to the conference on readjustment of relative freight rate schedules encountered much criticism and opposition. Mr. W. H. Chandler, speaking for the Boston Chamber of Commerce, said: "As I understand it, the science of rate-making is the science of making rates that will move business; and, so far as I have been able to find, I do not see that the committee has presented anything to show that the present rate structure is not, generally speaking, satisfactory, and moving the business without any difficulty." Mr. John B. Haynes, another delegate, said the Commission could make no greater mistake than to endeavor to select certain classes of traffic upon which reduced rates should be made to apply. He argued that if it were sound policy to increase rates on all traffic it was only fair that a portion of the burden should be lifted from all traffic.

Hoover Recommends Policies

In his address to the conference, Secretary Hoover, of the Department of Commerce, said that to secure the adoption of national policies in transportation matters "they must commend themselves to the common sense of the people and to do so they must protect public interest; they must be just to the investor and to the employe; they must maintain the initiative of our transportation agencies, and they must assure the development in service that our growing population will need." Secretary Hoover summarized his views of what these national policies should embody as follows:

"1. Railway service under private ownership in order to secure the driving force of individual initiative in efficiency and development.

"2. Government regulation of fair rates and railway finance in order to protect the shipper and to give stability to honest investment of savings.

"3. Recapture of excess profits in order to allow rates which will assure operation and service from railways in less favored circumstances yet prevent unjustified profits from any particular railways.

"4. The earliest practicable consolidation of the railways into larger systems under conditions of maintained competition in service in order to secure greater economy in operation, assurance of development and lower rates, and greater stability in earnings.

"5. A basis of employer and employee relationship that will stimulate mutual responsibility as the first requisite to continuous service.

"6. Reorganization of the rate structure in order to secure a better adjustment of the burden between commodity, class, and less than carload rates, most of which can best be accomplished after consolidation and consequent wider diversification of traffic.

"7. Cooperation between the shipper and the railways in order to secure a better distribution of traffic over the year and to avoid congestion of peak periods of car shortages.

"8. Definite development of relief in freight terminals, including coordination with motor truck feeders and distribution.

"9. Development of proper joint rates and service by water and rail transportation in order to relieve extension of railways where unnecessary and give the public the advantage of cheaper water transport.

"10. A comprehensive national plan of inland waterway development in substitution of hit-and-miss activities, with priority in development to rivers and canals where substantial traffic may be expected, including development of the St. Lawrence waterway, etc.

"Many of these questions are outside of legislation. They require continuous cooperation between the public and the transportation agencies. The accomplishment of some of them implies supplemental legislation or amendment to the present acts."

ANY legislation for or against the railroads is of vast importance to the mining industry, first, because mining must, if it is to sell its produce, receive a freight rate compatible with production cost; second, it must have efficient service in its car supply, and, lastly, it is interested in securing for every industry the application of those sound fundamental principles under which our nation has prospered.

This review is therefore presented from that angle.

The American Mining Congress.

Recapture Clause Upheld

In a unanimous opinion delivered by Chief Justice Taft, the Supreme Court of the United States on January 7 upheld the constitutionality of the recapture provisions of the transportation act. The decision states that "The new act seeks affirmatively to build up a system of railways prepared to handle promptly all the interstate traffic of the country. It aims to give the owners of the railways an opportunity to earn enough to maintain their properties and equipment in such a state of efficiency that they can carry well this burden. To achieve this great purpose it puts the railroad systems of the country more completely than ever under the fostering guardianship and control of the Commission which is to supervise their issue of securities, their car supply and distribution, their joint use of terminals, their construction of new lines, their abandonment of all lines, and by a proper division of joint rates, and by fixing adequate rates for interstate commerce, and in case of discrimination, for intrastate commerce, to secure a fair return upon the properties of the carriers engaged." * * *

"The excess caused by the discrepancy between the standard of reasonableness for the shipper and that for the carrier due to the necessity of maintaining uniform rates to be charged shippers, may properly be appropriated by the government for public uses because the appropriation takes away nothing which equitably belongs either to the shipper or to the carrier. Yet it is made up of payments for service to the public in transportation, and so it is properly to be devoted to creating a fund for helping the weaker roads more effectively to discharge their public duties. Indirectly and ultimately this should benefit the shippers by bringing the weaker roads in point of economy and efficiency to the stronger roads and thus making it just and possible to reduce the uniform rates." * * *

"The combination of uniform rates with the recapture clauses is necessary to the better development of the country's interstate transportation system as Congress has planned it. The control of the excess profit due to the level of the whole body of rates is the heart of the plan."

Principle Paternalistic

With respect to the effect of this decision, "The Traffic World," Chicago, has this to say: "To take from one business enterprise part of the results of its energy, of its economy, or even of the favorable circumstances by which it may find itself surrounded without effort of its own, in order to give it to another business enterprise—perhaps a competing one—is, in our judgment, bad policy. * * * The principle is, without shadow of doubt, paternalistic."

Amendments designed to improve the act will fail of passage along with those designed to repeal its important provisions and establish different bases for valuations and rate making. The diversity of opinion among members of the House and Senate, together with the rivalry which exists between the various "blocs," probably will prevent the passage of any transportation legislation.

HOUSE COMMITTEE CONCLUDES HEARINGS ON IMMIGRATION

Committee Hearings Show Diversified Opinion—Mining Industry Unalterably Committed To Selective Immigration Program—Representatives Of American Mining Congress Appear Before Committee—A Review Of Attitude Presented

THE House Immigration Committee which has been considering legislation in interest of immigration, closed its public hearings on January 8th. The American Mining Congress and members of its National Committee on Immigration were prominent among those represented. Howard D. Smith, Consolidated Coppermines Company, chairman of this committee, together with Sidney J. Jennings, former president of the American Mining Congress, and Harry N. Taylor of the United States Distributing Company of New York, presented the views of the committee. Herbert Wilson Smith of the official staff of the American Mining Congress presented a statement in behalf of the entire mining industry.

Howard D. Smith gave as a definition of the committee's interpretation of selective immigration, a law under which only such immigrants will be allowed to come here as shall be particularly selected for a particular purpose. He pointed out that, in spite of the fact that the mining industry of the West is in special need at this time of miners, if the laws cannot be so arranged that the mining industry can obtain the class of men it requires it should do without workers rather than to admit a horde of undesirables. Mr. Smith also pointed out "that our selfish interests will be best served if the test applied to an immigrant shall be whether it is good for the country generally that he be admitted."

Harry N. Taylor spoke for the coal operators represented upon the National Committee of the American Mining Congress on Immigration. In part he said:

"I have been in the mining game for 42 years. The committee has asked me to come here and correct an impression which has got out that the coal and metal industries of the country are anxious to import any kind of labor just so it is cheap. I assure the committee this is not our intention. We want only the kind of men who will work when they come here.

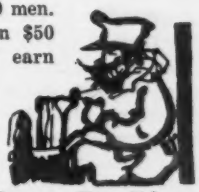
"In many years' experience in mining in ten or twelve different states, I have seen almost every kind of miner that comes, from 40 years ago until day. We are getting a class of miners attracted to the mines because the wages are higher than in agriculture or the steel industry or other big centers of employment. They come to us and claim to be miners. They go to their union. They cannot work in the mines unless they have a card and the union will take them in because they are worth $75 a piece to the union. We have no selection. They come up with a union card. They are 100 percent union. We take them in and find them absolutely useless. They take up room in the mine. But take them out and no other miner will work there. It adds to the cost of production that is passed along to the public to the public's detriment.

"We would like to see a law passed to do away with indiscriminate immigration; that the men who come here for employment should be men who would go to the work that they are suited to do. Instead of our being forced to take the riffraff wherever there are high wages, we should be able to have the class of men we prefer. I do not think this country should be asked to absorb the riffraff. We ought to get a class of men to do the kind of work we need and not the kind we do not want.

"There are, in many parts of Europe, men who do not earn anything like the wages we pay in this country who would make good citizens if they came. Employment is here for them, and they would be absorbed in our industries to the benefit of the public generally, but this indiscriminate immigration is worthless to us and to the public.

"It takes months and months to develop a man to a point where he is worth something and then he goes somewhere else. I have seen men come here and work in our mines who have earned good money and saved it and have gone back home and next year will come over again. They have told of the conditions and other men come and want the same work as the men who went and told them. They will come in and ask for the same place in the mines, room 42, for instance. Those are the first words they can speak in English, if foreign born. Others come from the north of England and different parts of England, to the places where their friends have made money. They come to work, stay at work, and are good citizens, coming here with the intention to be good citizens.

"The mining industry has become systematized. We have a contract with men that sets forth the conditions of labor and the amount of pay per day or per ton, whatever the particular work is. On that same contract we operated a mine with 300 to 500 men. Some men will earn $50 while others will earn $450 a month, with the same opportunities to work in that mine. The same thing is true with all of you gentlemen. You all have different earning power, according to the diligence put into the work.



"The only point I wish to make is this: In the mining industry we do not believe in indiscriminate immigration and bringing the riffraff and letting them try to force their way into certain industries. There should be some regulation by which the kind of men coming over should be more or less selected through our consular agents. Some method should be devised so that we would know the kind of men who come over here and that they are suited to the work they are seeking to do in this country, not just coming over to flood our industries and hurt our business. We never want more men than we can keep employed, because men are not good workers unless they are happy in their work, and they are not happy unless they are employed. We want enough men to produce the coal and metal necessary to this country and let them earn the most money they can."

Sidney J. Jennings, of the United States Smelting and Refining Company, emphasized the points raised by Howard D. Smith and H. N. Taylor with regard to restrictive immigration. He insisted that the mining industry does not want a flood of immigrants, but desires to get men who know the business of mining. In part, Mr. Jennings said:

"I would like to say that I am heartily in favor of the expression of opinion of Mr. Smith and Mr. Taylor on the subject of restriction of immigration. We do not want a flood of immigrants here. We desire to get these men here who will know their business in mining. I have given some study to the suggestions that have been made to bring that about. The suggestion that there be a certificate which should be applied for, admitting immigrants who would be selected or who would be induced to apply by an agent of the miners, seems to be a method which could be worked out to advantage. If that certificate were granted under certain rules and regulations which could be determined by this committee, you could, it seems to me, achieve the purpose which we have in mind. The applicant could also be ex-

amined medically by the steamship line officers so that they would be responsible for the medical fitness to enter this country, and you could therefore legitimately call upon them to stand the cost of his deportation, if he did not come up to requirements when he arrived in this country. These are the two main things I would like to see.

"There is one other point. There have been a great many questions asked about the American boy in the mines. I have before me every month a list of nationalities we employ in our mines. It shows 55 percent American and 45 percent divided among 27 other nationalities."

Herbert Wilson Smith, representing the American Mining Congress, called emphatic attention to the fact that the mining industry's attitude on immigration is different from the attitude which is accredited to it in the popular mind. He pointed out that the American Mining Congress has given many years of serious study to the question and that it is in a position to speak for the entire industry. Mr. Smith said:

"It is the thought among many people, and it is even thought by many of their representatives in Congress, that the mining industry is desirous of not restricting immigration; that it wants a large supply of so-called cheap labor. This is emphatically not the case. The mining industry favors restricted immigration and it favors selective immigration.

"In common with other industries, it takes the stand that the welfare of our country is the first consideration.

"At our convention in Milwaukee in September, 1923, the following resolution was passed:

" 'Be It Resolved, That we hereby place this organization on record as in favor of selective immigration, operative prior to embarkation, or such other procedure, if a better be proposed, as will tend to increase the proportion of workers among aliens admitted to the United States, to the end that mining and other industries may have a better labor supply than is now available or will probably be available unless specific efforts be made to increase the supply of workers from abroad.' "

"This resolution has been preceded by similar resolutions in former years. It is on such a platform that our immigration policy rests.

"In the American Mining Congress we have a Division for Industrial Cooperation whose purpose it is to bring about a more complete understanding between employers and employes and to work out means for the provision of a common meeting ground on which differences of opinion between them may be amicably settled. We realize that the harmony of interest which we thus seek to achieve can best be reached between employers and employes who have back of them as nearly similar backgrounds of civilization as is possible; that the greater disparity in backgrounds, the greater will be the disparity in thought.

"You may call this what you will; radical traits, national psychology, influences of heredity and environment. It all comes back to the one question: How do the minds of the people work? What are the incentives which move them in their daily activities? To what goals do they aspire?

"We have in the United States certain fundamental principles of self-government for which it may be said in all modesty that they have at least worked better than any principles for self-government ever evolved by any other nation.

"The question of determination of desirable conditions to our citizenry, therefore, resolves itself to the simple question of whether those seeking admission to this country have modes of thought which will harmonize with our fundamental institutions.

"I think we have, all of us, pretty well discarded the idea so popular a number of years ago—of the melting pot for the production of American citizenship. Carefully choosing the stocks from which our nation is to be made up in the future is not an affront to any nation or to any racial type, but rather a necessary scientific research to determine those characteristics which best make up a homogeneous people.

"Dr. Henry Fairchild Osborn, president of the American Museum of Natural History, similarly stated in a recent address that this was the whole problem and said further: 'In cold-blooded scientific language, our best stock is threatened with extinction. Our first duty is to our own country and our own civilization. No element should be allowed to become preponderant here which, conglomerating in any one region, might threaten our national character.'

"In the immigration conferences which I have attended in the last year and in the hearings before this committee the thing which keeps impressing me with more and more amazement is the assumption on the part of many peoples, as expressed by their representatives who have appeared, of an inalienable right of entry into the United States and that any restriction of immigration is a violation of this supposed right.

"It is but another phase of the effort to have the United States shoulder the troubles of the world. What other nation in any period of history can you imagine submitting to a peaceful invasion of millions of aliens annually until there were in that country fourteen million foreign born, as there are in the United States today?

"An American sociologist is quoted in World's Work as follows:

" 'If you should ask an Englishman whether the tone of political life in his country would remain unaffected by the admission to the electorate of a couple of million Cypriotes, Vlachs, and Bessarabians after five years' residence, he would take you for a madman. Suggest to the German that the plane of political intelligence in reading and thinking Germany would not be lowered by the access to the ballot box of multitudes of Serbs, Georgians, and Druses of Lebanon, and he will consign you to bedlam. Assure the son of Norway that the vote of the Persian or Yemenenite of sixty months' residence in Norway will be as often wise and right as his own, and he will be insulted. It is only we Americans who assume that the voting of the Middle Atlantic States with their million naturalized citizens, or of the east northcentral states with their million, is as sane, discriminating, and forward-looking as it would be without them.'

"We have in the United States a problem of immigration. Almost every other country of the world has a problem of emigration and in their problem of emigration they will naturally seek to retain the mose desirable of their citizens for themselves and rid themselves of the others. Emigration in many countries was originally a problem of deportation of undesirables.

"Thirty, forty, fifty and one hundred years ago the immigrant came to the United States with the knowledge he would have to work out his destiny and with a desire to work it out. Today too many of our immigrants come here with the idea that they will be able to scheme out their destiny and then proceed to do it. We, therefore, get in our present immigration far too large a percentage who stay in the already too congested centers of population, who inject themselves into an already over-crowded economic system as disturbers, not producers; as small merchants, not laborers; as disturbers who rail against the very conditions which they help to create. We get too many bootblacks and bell-boys and bootleggers and not enough deep chested men who are acquainted with the business end of a pick and shovel.

"Under that portion of the resolution adopted by the American Mining Congress which says, 'in favor of selective immigration operative prior to embarkation' I commend to the consideration of the committee the statement made by Dr. Spencer L. Dawes, medical examiner of the State Hospital Commission of New York, in a recent address concerning a method by which a degree

of selection abroad is made possible. Dr. Dawes said:

"'Permit me to outline to you a method advocated by me for many years and warmly approved of by the many investigators, federal officials and members of Congress. It is that there shall be provided as a prerequisite to the granting of a visé to the emigrant that he shall present a medical certificate on a blank provided by the Commissioner General of Immigration embodying family and personal history of the emigrant and certifying that the emigrant is not of the excluded classes. This medical certificate should be made out by a physician in the employ of the transportation company which would bring him to the United States, providing a fine based on the cost of transportation not less than three times such cost and leaving in the law all the provisions of Sections 9 and 19 referred to above. This would not, of course, even though a visé were granted, necessarily permit the emigrant to enter the United States. It would merely serve to lighten the labors of the immigration inspectors at the ports of entry and, in the hands of an honest steamship company, be a material saving to them in cost of fines and return passages of deportees and would place the responsibility directly where it belongs, namely, upon the transportation company, making it possible to severely penalize the steamship companies who attempted to evade the law and would not in any way interfere with deportation proceedings as carried out at present.'

"One of the most interesting suggestions which has recently been made concerning the revision of the immigration law was that put forth by Hugh Frayne, New York representative of the American Federation of Labor; in a recent address Mr. Frayne said:

"'If there is any change in our policy it should be in the contract labor law and against the exploiting of those in foreign lands by subterfuge,' he declared. 'If we continue to fill this country with insane and criminals who are seeping through today there will come a time when there will be nobody left to uphold our Constitution. Labor is for entrance of suitable immigrants from all nations except the Asiatic ones.

"'I am just going to say a word, and this is my own idea (no one need accept it if he doesn't want to)—I have fixed ideas of an immigration law. Some day it may be considered. I said during the war in my report, in closing the work as a member of the War Industries Board, that the immigration law should carry with it that in every country where we have international relations, where we have consuls established, that in that staff of officials representing our country, should be a business man, a manufacturer if possible, a farmer, and a representative of labor and a representative of the Department of Labor.

"'If the farmers, say, in Minnesota, wanted one hundred farm laborers, they would make that request through the farmers' organization direct through the government at Washington, through the Department of Agriculture. It would be checked up immediately by that Department, and if it was found that they actually did want 100 men, farm laborers (it would apply to another kind, but I am using that as an illustration) to work on the farms in the State of Minnesota, this message would be passed on from the Department of Agriculture to the Department of Labor and on to the consul in England. The representative of the Department of Labor, directly under the Department, as an immigration official, but doubly strengthened in his position because of being attached to the consul's department, would take the subject up with the representatives of the government of England, and would say, "Here, we want these 100 men. Get your men, the right type, men who actually know how to work on farms and know that they are going into the State of Minnesota when they arrive."

"'These men are gathered up, five for one city, ten for another, or one section of the state, until they are all absorbed, sent on, passed through the proper governmental channels, with their passports, and when they come here, go directly out to these jobs to take up their work and give service.

"'I challenge those who have been clamoring so much to contradict or offer a solution to meet that requirement that has a sounder basis. It is my thought based upon experience in dealing with this problem for at least a quarter of a century.'

"In short, instead of their being a penalty on provision for employment as exists at present with the contract labor law the law should be so modified that desirable employment may be provided for desirable entrants. In our present law we insist on the one hand that the immigrant shall give ample evidence that he will not become a public charge and on the other hand we penalize him and his prospective employer if any suggestion of prior arrangements for employment has been made before his entering. Just the opposite position prevails in the Canadian immigration law.

"With regard to the year to which the quota shall apply and the suggestion that we go back to 1890, we feel that insofar as this will change the type of immigrant which is now coming into the United States it will be a desirable step and that the further back we can go for the fixing of a date for this purpose the better it will probably be."

BAUXITE IN 1923

ABOUT 500,000 long tons of bauxite was produced in the United States in 1923, according to the Geological Survey. This quantity is equal to the largest annual domestic production before the World War. The largest producer was the American Bauxite Co., whose plant at Bauxite, Ark., is said to have handled about 1,000 tons a day. Three other companies also mined bauxite in Pulaski and Saline Counties, Ark. The operations in the eastern fields were less extensive. About eight companies, however, were working deposits in Alabama, Georgia and Tennessee, and the output was probably not much less than in 1922, when 42,810 long tons were produced. New deposits like those worked in Macon, Sumter and Wilkinson Counties, in central Georgia, were opened in 1923 in east-central Alabama.

SWEDISH SHALE OIL POSSIBILITIES

WITH an annual coal bill of nearly $25,000,000 and an oil bill of approximately $10,000,000, sums which are being paid out principally to English exporters and to a lesser extent American principals, it is but natural that much interest should be aroused in Sweden by the work carried on by a number of scientists and engineers among Swedish shale deposits, says a report from Consul Walter H. Sholes, Goteborg.

During the war when Sweden experienced great difficulties in obtaining necessary supplies of oils, a shale oil industry was developed, but in normal times this industry was not able to gain oil at competitive prices, and in 1921, according to official figures, the production for the whole of Sweden only amounted to 325,840 kilos, representing a value of $8,732. The problem of separating this oil from the shale has for several years been worked on in Sweden, and the experiments have been to a considerable extent subsidized by the Swedish government.

It is now reported that this problem has been solved by a method invented by two Swedish engineers. Their furnace has been working continually for two months and the results are claimed to be very gratifying from a technical as well as an economical point of view.

A knowledge of English among miners would save 1,000 lives annually, it is estimated.

WAYS AND MEANS COMMITTEE HOLDS TAX REVISION HEARINGS

Plan Suggested by Secretary Mellon Widely Indorsed—Farm Bureau Federation Opposes Surtax Reduction And Urges Provision To Prevent Corporate Reorganizations—American Mining Congress Presents Views

THE Mellon plan of tax revision to reduce taxes and simplify the revenue law is receiving the indorsement of individuals and organizations from every section of the country. The hearings before the Ways and Means Committee of the House of Representatives have been largely taken up with the presentation of testimony in favor of this plan of tax reduction. Few witnesses have opposed the plan in principle.

The proposed bill suggested by Secretary Mellon involves the reduction of surtaxes to a maximum of 25 percent; the reduction of the normal tax on earned incomes as distinguished from unearned incomes; the creation of a Board of Tax Appeals; the limitation of the deduction for capital losses to a maximum of 12½ percent; the limitation of the deduction for interest to excess of interest paid over interest received from tax-exempt securities; and the repeal of many of the so-called nuisance taxes. A change also is proposed in the provisions relating to the basis for determining gain or loss, depreciation and depletion, in the case of corporate reorganizations.

Farm Bureau Attacks Plan

The American Farm Bureau Federation representative, H. C. McKenzie, urged the Ways and Means Committee to reject the Mellon plan except as to the Board of Tax Appeals and the provision relating to reorganizations. He said that the present law permits reorganizations of corporations whereby profits are realized without being subject to tax, and that many such reorganizations involve the establishment of a greatly enlarged base for depreciation and depletion.

The American Mining Congress was represented at the hearings by McK. W. Kriegh, chief of the tax division. Mr. Kriegh told the committee that the proposed reduction of normal and surtax rates meets with the approval of the organization, and that except in a few particulars the changes in the administrative provisions of the bill had been approved by the General Tax Committee of the American Mining Congress. "The proposed Board of Tax Appeals," he said, "is in line with the resolution of the Denver Convention in 1920 advocating such a board." The testimony of Mr. Kriegh before the committee was, in part, as follows:

"The reduction of the surtax rates is believed to be an economic necessity in order to permit and facilitate the proper financing and normal expansion of business.

"Simplification and improvement of the administrative features of the revenue law are needed in the interests of both the government and the taxpayers.

"The Mellon plan was formulated to meet these important requirements. There is opposition to this plan, and while I do not desire to become involved in futile controversy, may I suggest that the statistics of income published by the Bureau of Internal Revenue will show that certain classes of taxpayers pay little or no revenue into the Federal Treasury, and it is among these same classes that much of the opposition to the Mellon plan is being developed. I believe some of their representatives who have appeared as witnesses before your committee have presumed to suggest what should and what should not be done in the way of tax revision.

"It is generally conceded that the reduction of the rates in the higher surtax brackets will be beneficial to business. We favor the reduction recommended by the Secretary of the Treasury because we feel that the officials of the Treasury Department are in a position to estimate with some degree of accuracy what reduction the economic siuation demands and what reduction the public revenues will stand. That is our position, and we feel that the findings of these officials should not be ignored.

"Section 204 of the proposed bill changes section 202 of the revenue act of 1921. The title of section 202 of the 1921 act is "Basis for Determining Gain or Loss." We are familiar with the provisions of section 202, but we do not know where the new section 204 will lead us. We are convinced that certain provisions of the new section 204 will work a hardship on many mining companies that are struggling for an existence. We are convinced that this section, with its present wording, will seriously disturb business and undoubtedly create many new difficulties of administration.

JAMMED

"A careful study of this section is being made by members of our General Tax Committee, and we hope within a short time to be able to submit to you a detailed statement showing how the provisions of this section would work if made effective. We submit that the section as worded at present would open up many legitimate transactions that were closed before the high war taxes were thought of, and would prevent proper business adjustments and reorganizations which have been necessary in the past to meet changing economic conditions.

"It is believed that your committee is sincerely endeavoring to formulate changes in the law that will stimulate and not retard business; that will simplify and not complicate the law.

"With respect to the limitation of capital loss deductions, it is our belief that this would introduce a new complication. The reason for this change in existing law is not apparent to us unless it is traceable merely to a desire to require a taxpayer who suffers losses to suffer the same impediment that the government suffers when the taxpayer makes capital gains and takes advantage of the limitation. We feel that this proposal ignores the real reason why the capital gain provision was inserted. It is our understanding that this provision was inserted as a relief provision in order that legitimate business transactions would not be prevented by the fear of high surtaxes. The relief arguments in the interest of taxpayers which made the capital gain provision sound do not apply in the case of the government. For the sake of a comparatively small amount of revenue, which the admissions tax alone would cover if not repealed, this proposed change introduces new and difficult complications into the law, and tends to apply as a principle what was merely intended as a relief provision. We feel that it is proper to bring this to the attention of your committee.

"The failure of the proposed bill to include the taxable year 1920 in the pro-

vision relating to net losses also has been considered by our General Tax Committee. Business losses in 1920 were greater than those incurred in 1919 when losses were first recognized as a proper set-off against profits of another year, but were less by an enormous aggregate sum than losses suffered in 1921 when the provision was inserted which allows net losses to be carried forward for two years. The effect of the provision of the 1921 law and of the proposed bill now under consideration is to discriminate against the many unfortunates who were compelled to take their losses resulting from the deflation and depression following the war in the year 1920. Our committee had decided not to urge your consideration of this matter, but it is understood that an amendment has been introduced which will have your consideration and therefore I take the liberty of presenting our views.

BOARD OF TAX APPEALS

"The proposal to create a Board of Tax Appeals is in line with a resolution passed by the Denver convention of the American Mining Congress in 1920, which was reaffirmed by subsequent conventions and afterward approved and urged by other organizations, and we heartily endorse the plan. A general discussion of this plan and the necessity therefor will be found in the proceedings of the fourth annual conference on mine taxation, a copy of which has been furnished your committee, and I will not attempt to review that discussion here.

"We feel that it is in the interest of the industries of the country to reduce taxes, and particularly the surtaxes which tend to divert capital into unproductive channels. This should be accomplished without delay."

THE PUBLIC DEBT AND TAXATION BURDENS

Bureau Of Census Figures Show Mounting Taxes And Indebtedness Of State And Local Governments—Nothing To Indicate When Maximum Will Be Reached

THE total debt of the United States has reached staggering proportions. The figure $32,786,715,000, as of 1922, is given by the Bureau of the Census, Department of Commerce, which has just completed the decennial census on wealth, debt and taxation. This total represents an increase of 381 percent over 1912, when the aggregate public debt amounted to $6,814,955,000.

The gross debt of the national government increased from $2,916,205,000 in 1913 to $22,525,773,000 in 1923. For the state governments the debt increased from $422,796,000 to $1,162,648,000; for the counties, from $371,528,000 to $1,366,636,000; and for all other civil divisions, from $3,104,426,000 to $7,731,658,000. The percent of increase during the ten-year period was as follows: Federal, 672%; states, 175% counties, 268%; and other civil divisions, 149%.

State Taxes Grow

The specified revenues of state and local governments include (1) general property taxes; (2) special taxes; (3) poll taxes; (4) licenses and permits; and (5) special assessments. A number of states have special taxes which are supplemental to general property taxes such as the so-called occupation tax of Minnesota, tonnage, production and severance taxes which have been adopted in a few states, and state income taxes.

The following summary of Census statistics on taxation and debt in the principal mining states and their subdivisions thus far released shows how enormously the burdens of public debt and taxation have grown during the ten years 1912 to 1922:

Arizona — General property taxes: 1912, $4,560,000; 1922, $13,765,000; increase, 202%. Public debt: 1912, $10,388,000; 1922, $44,973,000; increase, 333%.

THE following statistics indicate that state and local governments not only have been increasing their taxes enormously but have been pledging their credits as never before. The severe strain upon the resources of the country at the present time unquestionably is due to constantly increasing state and local tax burdens which have mounted by leaps and bounds while federal expenditures have been curtailed, federal indebtedness diminished, and federal taxes reduced.

—*The Editor.*

California — General property taxes: 1912, $69,433,000; 1922, $115,452,000; increase, 66%. Special taxes: 1912, $3,273,000; 1922, $14,114,000; increase, 331%. Licenses and permits: 1912, $14,331,000; 1922, $35,398,000; increase, 147%. Public debt: 1912, $146,752,000; 1922, $519,214,000; increase 254%. The increase in the debt of the state government alone was 734%.

Colorado — General property taxes: 1912, $12,951,000; 1922, $25,378,000; increase, 96%. Similar increases are shown in the figures given for special taxes, licenses and permits and special assessments. Public debt: 1912, $39,647,000; 1922, $99,645,000; increase, 151%. The increase for the state debt alone was 279%.

Idaho—General property taxes: 1912, $4,208,000; 1922, $10,685,000; increase, 154%. Public debt: 1912, $14,130,000; 1922, $61,693,000; increase, 337%.

Illinois—Complete figures not yet available. Costs of state government alone for the fiscal year ended June 30, 1922, amounted to $52,118,260.

Indiana—Complete figures not yet available. Costs of state government alone for the fiscal year ended June 30, 1922, amounted to $24,157,674.

Kansas—General property taxes: 1912, $16,395,000; 1922, $30,634,000; increase, 87%. Special taxes: 1912, $170,000; 1922, $771,000; increase, 354%. Licenses and permits: 1912, $665,000; 1922, $3,480,000; increase, 423%. Public debt: 1912, $52,868,000; 1922, $123,470,000; increase, 134%. Most of the increase in the public debt of Kansas was in the counties and cities.

Louisiana—General property taxes: 1912, $14,516,000; 1922, $34,635,000; increase, 139%. Public debt: 1912, $75,007,000; 1922, $126,946,000; increase, 69%.

Michigan—General property taxes: 1912, $36,461,000; 1922, $113,215,000; increase, 211%. Special taxes: 1912, $889,000; 1922, $9,630,000; increase, 983%. Special assessments: 1912, $3,071,000; 1922, $10,699,000; increase, 248%. Public debt: 1912, $59,997,000; 1922, $361,779,000; increase, 503%. The increase in indebtedness of the State was 618%, and of counties 727%.

Minnesota—General property taxes: 1912, $23,221,000; 1922, $62,803,000; increase, 170%. Public debt: 1912, $70,364 000; 1922, $269,607,000; increase, 283%. The increase in state indebtedness alone was 1,410%.

Missouri — General property taxes: 1912, $30,825,000; 1922, $43,970,000; increase, 43%. Special taxes: 1912, $1,141,000; 1922, $5,998 000; increase, 426%. Public debt: 1912, $61,622,000; 1922, $118,276,000; increase, 92%. For the state government alone the public

debt in 1912 was $4,671,000 and in 1922, $30,456,000, an increase of 552%.

Montana — General property taxes: 1912, $7,865,000; 1922, $12,682,000; increase, 61%. Public debt: 1912, $18,146,000; 1922, $65,229,000; increase, 259%. The increase in the debt of the state government alone was 401%.

Nevada — General property taxes: 1912, $2,119,000; 1922, $4,701,000; increase, 122%. Public debt: 1912, $3,183,000; 1922, $7,861,000; increase, 147%. The debt of the state government increased from $608,000 in 1912 to $2,608,000 in 1922, an increase of 329%.

New Mexico—General property taxes: 1912, $2,232,000; 1922, $9,506,000; increase, 326%. Public debt: 1912, $7,662,000; 1922, $25,010,000; increase, 226%. The increase in the debt of the state government was 307%.

Pennsylvania—General property taxes: 1912, $70,197,000; 1922, $109,658,000; increase, 56%. Special taxes: 1912, $18,876,000; 1922, $39,848,000; increase, 111%. Public debt: 1912, $245,979,000; 1922, $550,365,000; increase, 124%.

Tennessee—General property taxes: 1912, $12,794,000; 1922, $34,053,000; increase, 166%. Special taxes: 1912, $91,000; 1922, $1,154,000; increase, 1,168%. Public debt: 1912, $59,098,000; 1922, $142,159,000; increase, 141%. Most of the increase in indebtedness occurred in counties and cities.

Utah—General property taxes: 1912, $5,802,000; 1922, $9,629,000; increase, 66%. Special assessments: 1912, $681,000; 1922, $2,050,000; increase, 201%. Public debt: 1912, $15,288,000; 1922, $50,041,000; increase, 227%. Increase in the debt of the state government amounted to 587%; of the counties, 586%; and of the cities, etc., 162%.

Wisconsin—General property taxes: 1912, $25,857,000; 1922, $70,554,000; increase, 173%. Special taxes: 1912, $1,004,000; 1922, $10,329,000; increase, 929%. Public debt: 1912, $40,067,000; 1922, $104,523,000; increase, 161%. Counties incurred an increase of 619% in their indebtedness.

WHAT ELSE CAN WE TIE TO HIS TAIL?
—Morris for the George Matthew Adams Service.

Wyoming—General property taxes: 1912, $2,041,000; 1922, $4,728,000; increase, 132%. Public debt: 1912, $4,324,000; 1922, $19,128,000; increase, 342%. During the ten-year period the state government increased its indebtedness from $122,000 in 1912 to $4,011,000 in 1922, an increase of 3,177%.

RULING DEFINES METHOD OF TAKING DEPLETION

Revaluation of Silver and Copper Mines Involved—Department Finds Deduction Purely Statutory but Recognizes Mineral Production Wastes Capital Investment

THE Income Tax Unit is revaluing the mines of copper and silver mining companies. Original valuations made as of March 1, 1913, will stand for the years 1917 and 1918, but redetermined values will be used in computing depletion deductions of these companies for 1919 and subsequent years.

The ruling states that depletion as a deduction in determining the amount of the taxpayer's tax is purely statutory; but holds that the fact that the working of a mine carries with it depletion of its mineral content can not be disregarded, irrespective of whether Congress recognized the desirability of a deduction by reason thereof.

Briefly stated, the ruling involves: (1) redetermination of March 1, 1913, value; (2) deduction from such redetermined value of actual sustained depletion for the years 1913, 1914 and 1915; (3) deduction from such redetermined value of allowed depletion for 1916, 1917 and 1918; and (4) computation of deduction for 1919 and subsequent years on the basis of whatever amount is left after deducting (2) and (3). The text follows:

"The question has been raised as to the proper method of making depletion deductions for the years prior to the year 1919 incident to the revaluation of the mines of the copper and silver mining companies for the purpose of determining their tax liabilities for 1919 and subsequent years.

"The Revenue Act of 1913 allowed depletion 'in the case of mines to the extent of 5 per centum of the gross value at the mine of the output for the year for which the computation is made but no deduction shall be made for any amount of expense of restoring property or making good the exhaustion thereof for which an allowance is or has been made.' The Revenue Act of 1916 provided for full depletion, but this allowance was held to be only available to the owner of the property and not the lessee. (Weiss, collector, v. Mohawk Mining Company, 264 Fed., 502.) The Revenue Acts of 1918 and 1921 likewise provided for full depletion, but stated that the depletion allowance shall be equitably apportioned between the lessor and the lessee.

"The Supreme Court of the United States in the cases of Stratton's Independence v. Howbert (231 U. S., 399), von Baumbach v. Sargent Land Company (242 U. S., 503), and United States v. Biwabik Mining Company (247 U. S., 116) specifically held that neither the owner nor the lessee of mining property was entitled to an allowance by way of depletion in the absence of a provision in the statute to that end, even though the income from the mine carried with it a certain wasting of the capital assets of the taxpayer. It follows from these cases that depletion as a deduction in determining the amount of the taxpayer's tax is purely statutory.

"The fact that the working of a mine carries with it a depletion of its mineral content is a fact that can not be disregarded, however, irrespective of whether Congress recognized the desirability of a deduction by reason thereof. It follows that for the years 1913, 1914 and 1915 the mine was depleted to the full extent of the mineral extracted, even though Congress permitted a deduction only to the extent of 5 percent of the gross value at the mine of the output for the year, and, in determining for further years the depletion to be allowed on the March 1, 1913, value, there must be deducted the full depletion sustained for those three years.

"Where for the years 1916, 1917 and 1918 the taxpayer has actually been allowed, with the acquiescence of the bureau, a deduction in an amount in excess of what he should have been allowed under the revaluation of the mine, it is believed that the amount so allowed to him on the higher valuation must be considered in determining the value yet to be returned to him for 1919 and subsequent years. To disregard this allowed depletion, in so far as it is in excess of that sustained on the new valuation, would be to permit the taxpayer to duplicate the statutory deduction, which clearly was never contemplated by the statute, and finds no justification in either equity or law."

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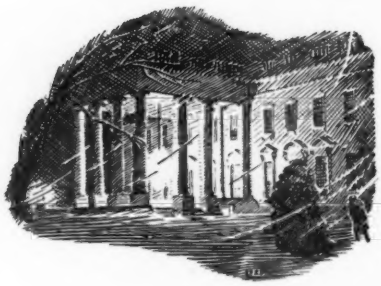
The White House in a Snow Setting

"What magic shall solve us the secret
of beauty that's born for an hour."



PRELIMINARIES TO COAL REGULATION

Everything Has Been Done Except The Mere Passage Of The Act—An Irresistible Movement Toward The Return Of Empire—The End Of Liberty And The Threshold Of Decay

By GEORGE H. CUSHING

EVERY detail has been arranged to bring coal under the most complete regulation. Only the passage of the act is necessary to make it a fact and the passage is delayed only by a circumstance. Only a miracle or the awakening of the people will stop it. For that statement, I will be called an alarmist.

If a child tugging at the coat tails of a both blind and deaf man should scream out that if allowed to take two more steps the man would tumble to his death, you, if you saw him on the edge of a cliff, would end not with saying that the child was an alarmist. You would suspend criticism until you had tried to save the man.

Some of us are swinging on the coat tails of Congress and screaming that the coal industry is about to pass under regulation—and the railroads under government ownership. We are saying that this will involve the Republic in ruin and will carry the liberty of mankind to the end of its short chapter. But some of you, including some coal operators, say that you never could endure the squawking of children; that Congress is of age and knows where it is going; that if it does fall over the cliff Providence—which is kind to drunkards and fools—will provide something for it to fall upon, and that if liberty is lost to the masses it will be a good thing for business. And thus it happens that the most complete preparations for coal regulation have been made and only some few know or will believe that any progress has been made. Indeed, the amazing truth is that very few of those who have the most at stake can be brought to believe that preparations for regulation have advanced an inch beyond where they were in 1919. What is even more curious is that some of those who have done the most to advance coal regulation profess to believe that they have only made a gesture—like doubling the fist and waving the arm—intended only to frighten naughty coal operators into charging prices which are acceptable to the people. On the contrary, even a cursory examination of the record of the last five years will prove in an instant that those who say that they do not want regulation have played the biggest part in bringing it about.

When the bills providing for peacetime regulation of coal were introduced in the Congress in 1919 a veteran in Washington said:

"That legislation will not pass at this session; you can rest easy on that score. It takes at least a year and a half to get any important legislation through Congress."

Many coal operators are still resting on that assurance. However, that was nearly five years ago. And coal bills in one form or another have been before Congress almost consistently. Whatever coal operators may think about it, the members of Congress will not believe that if they pass a coal bill now they will have been hasty about it. Five years is rather a long time to debate a measure.

The Congress is in a mood for such action—on very broad grounds, I mean. That is, any legislative body always has two main objectives. One is to enhance its own power and dignity—to make the government supreme in other words. The other is to preserve the liberties of the people—to cherish the Jeffersonian idea that that country is the best governed which is the least governed. The one leads to sedition and the stirring to war; the other leads to peace. Every student knows that in America, for the last generation, the drift has been toward increasing the power of the government. It started with the cry that men of money were more powerful than the state. It rode along on the desire to crush one group after another that the government might be supreme. The effort to control coal is in line with the drift of government for a generation. That supplies the motive for coal regulation.

If, thus, the will to regulate coal exists and if the preliminary struggle with congressional routine is past, it remains only to determine in what directions the drift toward regulation has been moving.

I have maintained for five years that as much time need not be spent on bringing the coal industry up to the brink of government ownership as was necessary when the railroads were traveling the same route. When the railroads were being regulated, all of the bridges that led from individualism to state socialism had to be tested—one at a time. Those bridges were numerous. To test all of them consumed years. Now, however, they have nearly all been tested; the structures are safe. And the road has been mapped out in minute detail. Thus, when coal comes to pass over the same road, it will be steered by seasoned pilots; they will be able to make much faster time. They know all of the crooks and turns of the road; they know now how to negotiate all of the mudholes.

That suggests one vital truth, viz: Coal will follow the same general route as that taken by the railroads.

Recently I read with keen interest and with a sinking heart the decision of the U. S. Supreme Court in the case of the Dayton-Goose Creek Railway—the decision in which the "recapture clause" was declared to be constitutional. In that decision—Chief Justice Taft wrote the opinion, the whole Court concurring—it was set down clearly that the following are the necessary steps if that degree of regulation is undertaken which runs to the end that the excess earnings of the rich corporation are expropriated to make good the deficiencies of the weaker units:

First—The business must be consecrated to the public service—established as a public utility, as it were.

Second—A fair price, so far as the consumer is concerned, must be fixed by the administrative body.

Third—A valuation of the property involved must be arrived at.

Fourth—The administrative body—with the consent of the Congress—must fix and declare what is a fair return to the owners of that property.

And then—

Fifth—Those who collect the "fair" price from the public but who, thereby, earn more than the fixed "fair" return on the value of their property, are declared by the Congress to act as a trustee for the government with the respect to the earnings in excess of what is fixed as a "fair" return. This excess may be used by the government for any lawful purpose. The decision said that the creation of a trusteeship is the genius of the whole arrangement; it makes possible the success of the whole venture.

That map of the road between individualism and state socialism is so clear and explicit that anyone can understand it and follow it. After I had read it, I recalled with peculiar vividness an incident now more than two years old. One day I had addressed a public meeting in Washington. Mr. Huston Thompson, then chairman of the Federal Trade

Commission, was in the audience. At the conclusion of the formal presentation of my views, he asked if I would admit that the operators who owned coal land were serving as trustees of the public with respect to the possession of that natural resource.

I recalled, also, that in two campaigns before committees of the Congress precisely the same question had been raised by representatives of our bureaucracy.

At the time of these occurrences, their significance passed entirely over my head. I did not see them. In the light of the Supreme Court decision, they came back with a new meaning. I realize now that the trusteeship is the device in which complete and final control by government culminates. And it has been a trusteeship in coal toward which our bureaucracy has been heading practically since 1919.

Awake, finally, to a full realization of the significance of a trusteeship as a regulatory device, I went back over the records of other campaigns to measure what progress has been made toward laying the foundation for a trusteeship in coal. That record is astounding.

The first requisite is that, as a prelude to any regulation whatever, an industry must de dedicated to the public service—must become purely a public utility. The record stands that in the Calder bill and in the Borah amendment to the Frelinghuysen bill, it was declared that coal is "charged with a public interest"—that it is consecrated, in other words, to the public interest and hence is a public utility. So far as I know, no action of the coal industry has put coal in that legal position. Nothing in the nature of coal itself puts it in any such position. Therefore, coal was to be lifted out of the list of commodities and put under the public utility classification by an act of Congress. And the power of Congress to classify industries—especially for purposes of taxation—has been and is stoutly maintained; it is almost proved.

The record also contains the long introduction to the final report of the Coal Commission which attempts to prove, by devious arguments, that coal is "charged with a public interest." That statement was made flatly by it in its report on anthracite. It is reiterated with equal force in its report on bituminous. In the light of these things, it is obvious that the bureaus rest their whole program for coal on the theory that it is—or can be declared to be—a public utility. And it is highly significant that all coal bills now pending before Congress start with that particular declaration. I would say, then, that the prelude has been carefully arranged.

After coal has been consecrated—no matter by what method—to the public service, the next requisite is that a price shall be fixed which is fair to the public. The coal operators—and others—may believe that such a thing cannot be, and certainly has not been, done. On the contrary, it was first done during the war by the Fuel Administration. It was next done during the strike of 1919 by the revived Fuel Administration. It was done a third time in 1920 by the Attorney General. Subsequently it was done twice by the Secretary of Commerce. Therefore, five times within six years, a "fair" price for coal has been established by the government. And, in every instance, the price was declared to be the maximum that the public ought to pay. I contend that that step has been taken and that that preliminary has been attended to.

According to the Supreme Court's formula, the third thing which must be done is to fix the value of the property involved in regulation. This, also, has been done. That is, the Coal Commission assembled a board of engineers to lay out a plan for the valuation of the coal industry and then, according to its own plan, to place a value on it. It did both. Its report, however, was not accepted because it had fixed a valuation which some members of the Coal Commission thought to be too high. Then—and this is the crux of the whole matter—the Coal Commission itself sent out a questionnaire by which it asked the operators to fix a value on their own business. Without knowing what they were doing, the coal operators responded to that questionnaire. Thus they fixed a value on their own plants. The returns of the operators have been summarized in a report which—for some mysterious reason—the Coal Commission has withheld from publication. It has been referred to in speeches by some members of the staff, but it has never been made public. However, the property of coal operators has been valued. Thus the third preliminary has been attended to.

The fourth thing to be done, according to the Taft formula, is to fix a rate of return which is fair to the owners of the property. The Board of Engineers of the Coal Commission, in the report which was rejected, said that the bituminous operators should earn at least the "discount rate" of 6 percent and that the anthracite operators should at least earn 8 percent. That detail was not overlooked.

And then comes the bureau idea that coal operators are trustees of a natural resource—holding them in the popular interests, as it were.

I have made this amazing summary conscious that not one person in a million has the slightest idea we have progressed that far toward regulation of coal and that we are within two steps of government ownership. I believe, even, that not more than five in a million will concede that what I say has any foundation in truth. Even so, and—to me—it is perfectly obvious that every step of the way has been most carefully planned and that Congress has before it, by precept and example, the whole formula for coal which the bureaus have in mind for coal.

The operators have not seen the cunning in these preliminaries. It is doubtful if members of Congress have seen it. And Congress, blind and deaf to the screams of warning which some of us are allowing to escape at intervals, is just about to take the fatal step. It is the hour for prayer—and for a fight.

ARIZONA CHAPTER CHANGES HEADQUARTERS

J. E. Curry Resigns as Secretary. W. B. Gohring Elected His Successor

PHOENIX will be the future headquarters of the Arizona Chapter of the American Mining Congress, according to announcement of G. M. Colvocoresses, governor of the Arizona Chapter, at the close of the annual meeting.

The headquarters of the chapter have been for several years in Bisbee, but because of the more central location of Phoenix the delegates decided to remove it there about January 1.

Virtually every large mining company of the state was represented at the meeting. All officers who served last year were re-elected for another year, with the exception of Joseph E. Curry, of Bisbee, who submitted his resignation as secretary.

William B. Gohring, of Tucson, was elected to fill the vacancy created by the resignation of Mr. Curry. He will assume his duties immediately. Re-elected officers of the association are G. M. Colvorcoresses, of Humboldt, governor; W. S. Boyd, of Ray, first vice-governor; T. H. O'Brien, of Inspiration, second vice-governor; and John C. Greenway, of Warren, third vice-governor.

Joseph Teipel, W. F. Exner, and F. G. Langbein announce their resignation as assistant general manager, secretary and purchasing agent of the Mancha Storage Battery Locomotive Company, and their affiliation with their newly organized company, the St. Louis Steel Casting Company, which will be located at 100 Malt Street, St. Louis, Mo., after February 1. This company expects to be in full production not later than March 15 and will produce only the best grade of steel castings.

NO COAL SHORTAGE POSSIBLE

By HARRY N. TAYLOR *

THE United Mine Workers of America assembled in Indianapolis, Ind., on January 22, in a convention to determine what demands to make upon the unionized bituminous coal fields of the United States.

A committee, headed by John L. Lewis, will go to Jacksonville, Fla., on February 11, to meet a committee of coal operators representing that portion of the old Central Competitive Field that is still active, viz: Indiana, Illinois, part of Ohio, and possibly the western part of Pennsylvania. The non-union districts and the outlying unionized districts, representing more than 80 percent of the bituminous production, will not be represented at this meeting. Although these operators do not represent to exceed 20 percent of the bituminous production of the United States, they will assume to make a basic scale to govern the industry. The miners will represent 100 percent of the union operations of the country.

The last wage scale made by collective bargaining between the United Mine Workers and the Central Competitive Field was made in 1916. Since that time every wage scale that has been put into force was put in either under the direction of the Fuel Administration or by the renewal of the scales put into effect in war times, so that the miners today, through their 100 percent organization, have been able to maintain their war wage peak, the last contract expiring April 1, 1924.

The public is interested in knowing whether there will be a strike on April 1, or whether there will be a settlement. The situation is as follows:

There were sixty million tons of coal in storage on January 1. This storage pile will be increased between now and April 1, so that unquestionably there will be at least seventy-five million tons of coal in stock on that date, when the present wage scale expires.

Twenty-five million tons of stock is normal in this country. When the stock reaches forty million tons, the bituminous coal industry begins to lag and is prostrated when the stock reaches fifty million tons.

If a settlement is reached and notice that such has been the case is given to the public some time in February, the consuming public will cease to buy coal, but will immediately proceed to use up the enormous stocks on hand. Past experience has taught the operators and miners that this will mean a practical cessation of work through lack of orders until the stocks have been exhausted, which will be late in the summer.

The radical element of the miners will probably take the position that they might as well be on strike after April 1 demanding some increase as to make a settlement promptly and lie idle for want of orders. The conservative element of the miners will not want to bring on industrial strife, as it is costly and eats up their funds in the way of assistance which they must give their members if they authorize a strike, which would not be necessary if there was simply a cessation of work through lack of orders.

The likelihood of winning a strike, with the enormous stock of coal on hand, and the further fact that the non-union mines which will remain at work can supply at least 50 percent of the normal requirements, is so remote that the thinking men in the miners' organization will be slow to sanction a strike order. Even should a strike be called, there is no possibility of the public being short of coal. Seventy-five million tons of stored coal, plus the non-union production, will keep the public well supplied and all demands for bituminous coal can be met. The anthracite wage contract has been made for two years, so there will be no interruption of work in the anthracite field.

The bituminous industry is in a desperately demoralized condition owing to the failure on the part of the miners to meet the situation and adjust their wartime wage to present operating conditions. A careful survey of the situation shows that of 5,519 bituminous shipping mines 2,393 operations are completely closed down, representing 43.35 percent of the output, and the balance of the mines which are still open and attempting to run are operating from one to five days per week.

There are in excess of 200,000 miners above those required to supply the public wants. These men are attracted by the high wage paid in the coal mines, where the minimum wage in the unionized mines is $7.50 for eight hours. In the metal mines of the country there is a shortage of miners, as the wage paid in the metal mines is slightly less than $5 per day of eight hours.

If the miners were to consider the public welfare, as well as their own, they would consent to an adjustment of the wages. The damming up of labor supply on account of the high wage holding unnecessary men in the bituminous coal industry, while there is a shortage of men in the metal mines, could be easily corrected by an adjustment slightly upward in the metal mining scale and slightly downward in the coal mining scale, which would permit a flow of men to whichever branch of the mining industry required their services, having in mind at all times a living wage.

The coal industry, relieved of the burden of overmanning, which causes the miners to force jobs for unnecessary men, thus increasing the cost to the public, and the release of these men to the metal mines, where they are badly needed, would stabilize production both of coal and other minerals, and would react to the public good, as well as the welfare of the men employed in both industries.

Whether there is a strike on April 1 or not, the public will not be greatly concerned, as there will be ample coal available for all public needs until late in the fall, regardless of whatever action is taken.

*United States Distributing Corporation.

HAS COAL A PUBLIC INTEREST?

THE Supreme Court may shortly pass on the question as to whether the coal industry is charged with a public interest, around which revolves the constitutionality of proposed legislation regulating the industry. The issue is presented in a case from the State of Kansas where a mine leader was convicted of calling a coal strike in violation of the Kansas Court of Industrial Relations law. The mine leader appealed from his conviction to the Supreme Court, and in the argument of the case his attorneys asserted that coal mining is not charged with a public interest. They denied the right of the State of Kansas to make it a crime for an officer of a labor union to call a strike. On the other hand, attorneys for the State of Kansas argued that while coal mining may not be subject to public interests on the basis price regulation, it can be predicated on the necessity of furnishing the public with coal and the insurance of the public safety. The issue is likewise involved in the so-called "cost data" suit pending on appeal by the Federal Trade Commission. In this case, which has been argued before the court, the Trade Commission declares that the coal industry is charged with a public interest and that it is within its jurisdiction to secure necessary data therefrom in connection with its regulation in the public interest.

NATIONAL COAL ASSOCIATION MEETING

THE quarterly meeting of the Board of Directors of National Coal Association was held in Washington January 8th and 9th. As part of it, there was also a meeting of all of the important committees.

The matter which attracted most attention was the financial condition of the Association. This was of interest only because it reflected directly the financial status of the coal industry. It was openly admitted by the Board of Directors, in their public meetings, that, generally, the selling price of "spot" coal today is only about high enough to meet payrolls and bills for material, leaving nothing for capital or for overhead, and practically nothing for selling expense. The industry is, therefore, down to a position where, by neglecting amortization and depreciation charges, it is giving its capital, piecemeal, to the consumers of coal.

It was admitted in this meeting, as indeed it was at the meeting of the American Statistical Society which immediately preceded it, that the average selling price of coal today is relatively lower than it was in 1913 and 1914, when the operators were pleading for some form of relief from the effects of excessive competition. It was pointed out, with a trace of sarcasm, that, regardless of the financial condition of the industry, Congress is now debating the regulation of coal on the theory that prices are yielding the operators excessive profits, which profits must be diverted by some process back into the pockets of the consumers, from whom they were taken.

It is quite natural that this condition of the trade should be reflected in the financial statement of the Association. This caused the directors some concern because current receipts were not paying current expenses, and the Association had been obliged to borrow some $50,000 as a result of which it had been compelled to hypothecate its government bonds purchased in 1918.

Regardless of the financial condition of the industry and the association, the Board of Directors was decidedly against any form of regulation which would use the power of government to improve the earnings of the industry. The operators chose to rely upon their own rather than upon the government's efforts in recovering their solvency. In resolutions, they went on record as opposed to:

1. Any declaration that coal is a commodity charged with a public interest.

2. Any theory that prices can be fixed by any process except the operation of the law of supply and demand.

In addition, they decided to investigate, before approving, the proposal to establish a Department of Mines.

They passed a resolution favoring the principle of tax reduction announced in the Mellon plan, but did not specifically endorse any measure.

They had under consideration a resolution to oppose any attempt to regulate coal by manipulation of freight rates or by zoning. This was in line with everything else that they had stood for, but believing the whole subject had been covered in their other resolutions, they voted to put this one on the table.

A resolution was introduced which, if carried, would have launched them upon a statistical inquiry somewhat in line with Mr. Brydon's suggestion of last August. In view of developments since then—the courts have ruled against certain forms of statistical investigation—they decided to investigate further before starting any statistical activity.

Subsequent to the meeting of the Association, the stand it has taken has strengthened its position with the membership and allowed it to recover something of its financial strength without any improvement in the market condition for coal.

TAXABILITY OF DISTRIBUTIONS IN LIQUIDATION

Revenue Bureau Announces Ruling On Distributions Made By Corporations To Their Shareholders In Liquidation

IN order to insure proper treatment under section 201 of the Revenue Act of 1921 of distributions made by corporations in liquidation, Commissioner of Internal Revenue Blair has issued the following ruling:

"Where a distribution in liquidation is paid by a corporation to its shareholders, it is necessary first to determine whether a gain or loss has been realized by such shareholder, using the basis prescribed in section 202 of the act. If a gain has been realized, to the extent that it is paid out of earnings or profits of the corporation, accumulated since February 28, 1913, such gain is taxable as a dividend; to the extent that such gain has not been paid either (1) from such earnings, or (2) from earnings or profits accumulated or increase in value of property accrued prior to March 1, 1913, it is subject both to normal tax and surtax, under the general provisions of the act taxing gains.

"Any distribution made by a corporation to its stockholders out of earnings or profits accumulated or increase in value accrued prior to March 1, 1913, is exempt from tax. A distribution in liquidation by a corporation of its assets in kind is subject to the same treatment, to the extent that the assets distributed have a readily realizable market value. It should be noted, however, that the mere increase in the value of capital assets unrealized by the corporation is not 'earnings or profits' of the corporation; and that if the gain realized by the stockholder from the distribution in liquidation consists of such increase accrued since February 28, 1913, it is subject to both normal tax and surtax in his hands.

"No gain or loss will be realized by a stockholder from a distribution of assets having no readily realizable market value until their subsequent sale or other disposition by him. However, if the distribution consists partly of (1) property which has no readily realizable market value, together with (2) money or other property which has a readily realizable market value, then the money and/or the fair market value of the latter property shall be applied against and reduce the basis provided in section 202 for finally ascertaining the gain or loss on the shares owned by the stockholder receiving the distribution; and if in excess of such basis it is taxable to the extent of such excess, according to the fund out of which such excess is paid, on the principles stated in this paragraph. Finally, if the amount received by the stockholder in liquidation is less than the cost or other basis of the stock, ascertained according to the provisions of section 202, this loss is deductible on the income tax return of such stockholder.

"Distributions made by a corporation in partial liquidation should be treated similarly to distributions in final liquidation, subject, however, to the qualifications of section 201 (b) of the act."

Two hundred and ninety-eight vessels of the American merchant marine were lost during the year; 139 were sold to alien flags; and 628 were abandoned, their tonnage being: lost, 127,584; sold, 218,401; abandoned, 142,916.

Italy is reported to have a surplus of 300,000 people to send abroad next year.

METAL MINING IN THE UNITED STATES IN 1923

A Review Of Metal Mining Conditions In The United States In 1923—Great Prosperity Shown, Particularly In Metals Affected By Tariff Law—Decrease Shown In Gold And Silver Production—Industry Extremely Active In Development Work—Outlook For 1924 Encouraging

IF THE mining industry is taken as the barometer for the prosperity of the nation, 1924 should meet the expectations of the most optimistic. Fresented herewith is a résumé of the annual reports of the United States Geological Survey on metal production for 1923. In submitting these reports the survey is prolific in its use of such phrases as "value of metal output more than doubled," "unusually large output," "great increase reported." The percentage of the increase in production is estimated by the Survey at from 18 to 100 percent.

It is interesting to note that the substantial increases in output are largely credited to the metals that are more particularly favored by the Fordney-McCumber tariff bill. These reports show that many properties which were unable to produce without protection, are now installing new equipment and preparing for substantial production during 1924. Only gold and silver show a decrease. With the expiration of the Pittman silver act, production of silver fell off materially, and only those gold properties most favorably situated have been able to survive the depression.

Every metal mining state shows a decided advance in the value of her mineral production, with the exception of California, which is largely a gold-producing state. This state's general average, however, was brought up by her increase in production of lead and copper ores.

Following is a résumé of the Geological Survey's reports:

Arizona

Great Increase Over 1922 in Both Quantity and Value—Companies Paid Substantial Dividends

The value of the gold, silver, copper, lead and zinc produced by mines in Arizona in 1923, according to a statement made public by the Department of the Interior, based on an estimate by V. C. Heikes, of the Geological Survey, was $102,914,000, an increase from $62,902,725 in 1922. The increase made, which involves both the quantity and value of all the metals was a result of normal operations at the large producing mines.

Big Gain in Gold

The output of gold rose from $3,524,134 in 1922 to $5,772,300 in 1923 as a result of the increase in gold from both copper ore and gold ore. The largest output of gold came, as in past years, from the United Eastern mine, at Oatman, and the output of the San Francisco (Oatman) district increased from $2,085,018 in 1922 to about $2,706,000 in 1923. The Tom Reed mill continued to treat company ore and custom ore from mines of this district, and the Goldroad mine resumed operations and produced a large quantity of gold. One of the pleasant surprises of the year was the large output of gold from the United Verde mine, at Jerome, which took second place in order of output. The next mines in order of output were the Calumet and Arizona, Copper Queen, Tom Reed, Goldroad, United Verde Extension, Copper Chief, Old Dominion, Bunker Hill, Blue Bell, Magma, Shattuck, Sheldon, and Arizona Commercial mines. Gold ore from Oatman was treated by cyanidation, as was the gold and silver ore from the Copper Chief mine, at Jerome. A new milling plant was completed for the Gold Dust mine, at Oatman, and mills were being constructed for the Oatman United and Telluride mines.

Increase of More than 60 Percent in Silver

The output of silver increased from 4,531,864 ounces in 1922 to about 7,316,000 ounces in 1923. Though most of the silver was obtained from the increased output of copper ore, much of it was saved in the smelting of silver-lead ore, pyritic ore, and silver ore. The largest producers of silver were the United Verde, Copper Queen, Calumet and Arizona, Bunker Hill, Shattuck, Signal United Verde Extension, Superior and Boston, Old Dominion, Iron King and Commonwealth mines. After the expiration of the Pittman act in May, the output from Tombstone and some other camps decreased considerably, but the production was large at the Signal, Copper Chief, Stargo, and Sheldon properties. Nearly all the silver was recovered from ore and concentrate smelted, but some was saved in bullion from the mines at Oatman and from the Bonanza, Stargo and Copper Chief properties.

Copper Makes Great Gain

The output of copper increased from 400,043,128 pounds in 1922 to 624,000,000 pounds in 1923 and the value increased from $54,005,822 to nearly $89,856,000. All the large smelting plants were active, and the Morenci branch of the Phelps Dodge Corporation resumed smelting operations at Clifton in May. The Magma Copper Co. resumed mining and milling operations early in the year and was also constructing a new smelting plant. The largest producers of copper in 1923 were the United Verde, Inspiration, Copper Queen, Miami, Ray Consolidated, United Verde Extension, New Cornelia, Calumet and Arizona, and Morenci branch mines. Other mines producing more than 1,000,000 pounds of copper each were the Arizona Commercial, Magma, Swansea, Iron Cap, Blue Bell, El Tiro, Shattuck, Midland, Arizona, Binghampton, and Superior and Boston. The price of copper averaged 14.40 cents a pound for the year but dropped to about 12.68 cents the last quarter. The repairing of the Phelps Dodge concentrator at Clifton, and the initial work of constructing the New Cornelia concentration plant were features of the year's work.

Lead Makes a Good Showing

The production of lead in Arizona increased from 15,070,894 pounds in 1922 to 17,698,000 pounds in 1923, and the

United Verde Copper Co., Jerome, Arizona

value increased from $828,899 to $1,283,100. The Copper Queen mine, at Bisbee, was the largest producer of lead in Arizona, and the Seventy-nine mine, in Gila county, was second. Shipments of both copper ore and lead ore were resumed at the Shattuck property, and much lead ore came from the Calumet and Arizona mine. The Signal mine, at Yucca, was a large producer of lead from silver-lead concentrate, and lessees at Tombstone shipped much lead ore as well as silver ore. Lead ore and concentrate were shipped to El Paso, Tex., and Midvale, Utah.

The Copper Queen mine was the only producer of zinc in Arizona in 1923, as in 1922. Lead-zinc ore was shipped to Kansas for smelting.

Dividends Paid

The published dividends paid by Arizona mining companies (United Verde Extension, Calumet and Arizona, United Verde, Inspiration, Miami, New Cornelia, United Eastern, Arizona Commercial and Iron Cap) during the first eleven months of 1923 amounted to $13,783,780, exclusive of $1,950,000 paid by the Phelps Dodge Corporation, which operates the Copper Queen and Morenci properties in Arizona and other mines in Mexico and New Mexico.

Utah

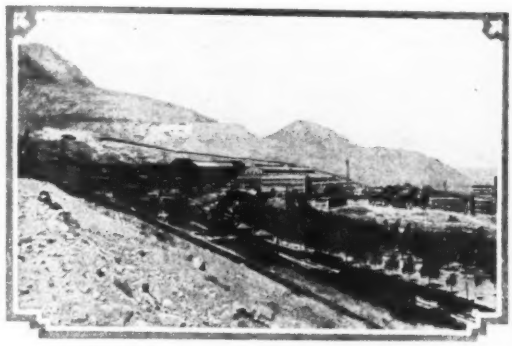
Unusually Large Output in 1923—*Value of Gold, Silver, Copper, Lead and Zinc Increased* $40,424,199 *Over* 1922—*Retained Place as Largest Silver Producer in the United States—Third in Production of Lead and Second only to Arizona in Production of Copper*

Great Gain in Gold

The production of gold increased from $2,296,855 in 1922 to about $3,188,860 in 1923. Most of the increase resulted from the smelting of copper concentrate from the Bingham (West Mountain) district, as both the Utah Copper and Utah Consolidated were producing at normal rates. The United States properties and the Utah Apex mine produced much gold from lead ore. No great change was made in the output of gold from the Park City and Tintic districts, though in each district the mines were worked intensively the first five months of the year. The largest producers of gold were the Utah Copper, Utah Consolidated, United States, Deer Trail, Grand Central, Niagara, Chief Consolidated, Park Utah, Vipont, Tintic Standard, Silver King, Coalition and Utah Apex mines. Practically all the gold came from ore or concentrate smelted, though some ore was treated by cyanidation in Piute County and by roasting and leaching in the Tintic district.

More Silver Produced

The output of silver increased from the previous record output of 17,271,100 ounces in 1922 to about 19,500,000 ounces in 1923, a gain of more than 2,000,000 ounces, but the value was less than in 1922, on account of the reduced price of silver. Every possible effort was made from January to May to market ores containing silver before the expiration of the Pittman act, and the increase was general among the large producing districts but was especially large in the Tintic district. The Tintic Standard Mining Co. made an unusual record and was the largest producer of silver in the state, and the output of the Chief Consolidated mine at Eureka for years the largest producer, was only slightly less. Other large silver producers were the Park Utah, Silver King Coalition, Park City (Judge and Daly West), Vipont, Victoria, Utah Copper, Grand Central, United States, Eagle and Blue Bell, Utah Apex and Ontario mines, each of which produced more than 300,000 ounces of silver. Some siliceous ore was treated by roasting and leaching in the Tintic district and some ore from the Deer Trail mine was milled by cyanidation, but all the rest of the silver resulted from ores smelted. Several of the large producers, such as the Ontario, Vipont, and Deer Trail, produced less silver than in 1922, as their operations were greatly curtailed the second half of the year, owing to the drop in the price of silver.



The Arthur Plant of the Utah Copper Company

Tremendous Gain in Copper

The production of copper increased from 97,193,850 pounds in 1922 to 230,675,000 pounds in 1923, and the value from $13,121,170 to about $33,217,000. The Utah Copper Co., the largest producer in the state, more than doubled its output, making an average of more than 16,000,000 pounds a month. Recovery was greatly increased by the addition of flotation equipment in the mills at Magna and Arthur. The Utah Consolidated and Ohio mines, at Bingham, were also large producers of copper, the first by flotation at International and the second by leaching copper ore in place. Copper was also produced from mines at Park City, Eureka, Ophir, Alta and other camps. The copper output of the state was slightly less than the output of 1917, which was 246,000,000 pounds.

Record Output of Lead

The output of lead increased from 135,332,144 pounds in 1922 to 203,272,000 pounds in 1923, which is the largest lead output Utah has ever made. The value increased from $7,443,268 to $15,099,000, and the average price from 5.5 cents to about 7.25 cents a pound. The lead-smelting plants at Murray, Midvale, and International were operated continuously and were unusually busy from January to June. The Tintic Standard Mining Co. was the largest producer of lead in Utah, as well as of silver. Other large producers were the Silver King Coalition, Chief Consolidated, Utah Apex, Park City, United States, Victoria, Niagara and Ophir Hill mines. The output of lead from the Tintic, Park City and Bingham districts was notably increased, but the increase from the Tintic district was the largest. Considerable quantities of silver-lead ore and concentrate were also shipped from Ophir, Alta, Frisco and Marysvale.

Zinc is Doubled

The recoverable zinc in the ore mined increased from 5,119,410 pounds in 1922 to 11,200,000 pounds in 1923, as a result of better market conditions. The Judge mine, at Park City, was the largest producer, and the United States property, at Bingham followed. Shipments were also made from the Niagara, Chief, Gemini, Hidden Treasure, Horn Silver, Eva, Pittsburg, New York Bingham, and Ute mines. The electrolytic zinc plant at Park City and the zinc oxide plant near Murray were idle.

Output by Districts

In 1923 the mines in Utah produced about 12,673 000 tons of ore, an increase from 5,560,034 tons in 1922. Of this total the Bingham district produced 11,879,000 tons, as compared with 4,475,810 tons in 1922. The estimated production of the district was 102,700 ounces of gold, 2,124,000 ounces of silver, 217,832,000 pounds of copper, 50,860,000 pounds of lead, and more than 3,500,000 pounds of zinc.

The mines of the Tintic district produced 368,000 tons of ore, as compared with 365,712 tons in 1922. The esti-

mated production of the district was 23,167 ounces of gold, 9,230,000 ounces of silver, 2,675,000 pounds of copper, 78,436,000 pounds of lead, and 300,000 pounds of zinc. The Tintic district produced nearly as much silver as the state of Nevada. The mines that produced more than 5,000 tons of ore during the year were the Tintic Standard, Chief Consolidated, Victoria, Eagle and Blue Bell, Grand Central, Iron Blossom, Colorado and Gemini.

The shipments of ore and concentrate from the Park City region increased from 130,886 tons in 1922 to 164,300 tons in 1923. The estimated output of the district was 9,190 ounces of gold, 5,779,000 ounces of silver, 1,969,000 pounds of copper, 51,255,000 pounds of lead, and more than 7,000,000 pounds of zinc.

Mines in the Big and Little Cottonwood districts produced approximately 17,000,000 tons of ore, containing 132 ounces of gold, 366,000 ounces of silver, 440,000 pounds of copper and 6,060,000 pounds of lead. The large producers were the Cardiff, Columbus Rexall, Michigan Utah, Emma and Wasatch mines. From Ophir and Stockton shipments of lead ore and concentrate, amounting to about 23,000 tons, were made from the Ophir Hill, Keystone (Galena King), Hidden Treasure and Bullion Coalition mines. The Vipont, Horn Silver and Western Utah were large shippers in other parts of the state.

Dividends Paid

The published dividends paid by mining companies in Utah in 1923 amount to $10,297,422, exclusive of $1,702,224 paid by the United States Smelting, Refining & Mining Co., which controls mines at Eureka and Bingham as well as mines in other states. The companies that contributed to this total were the Utah Copper, Silver King Coalition, Tintic Standard, Park Utah, Park City Mining & Smelting, Utah Apex, Chief Consolidated, Iron Blossom, Columbus Rexall and Silver Wave.

Colorado

Prosperity Apparent—Mineral Products Increase 18 Percent in Value over 1922 Estimate

Mines in Colorado produced $6,553,000 in gold, 5,600,000 ounces of silver, 41,000,000 pounds of lead, 3,500,000 pounds of copper and 52,000,000 pounds of zinc in 1923, having a total gross value of $18,020,000 as compared with $6,373,419 in gold, 5,855,911 ounces of silver, 23,477,200 pounds of lead, 3,373,452 pounds of copper and 23,258,000 pounds of zinc, having a gross value of $15,301,698 in 1922, according to the Department of the Interior, as reported by C. W. Henderson, of the Geological Survey. The increase in total value was about 18 percent, chiefly in the value of zinc, lead and gold.

The Cripple Creek district produced $4,360,000 in gold, as compared with $4,000,000 in 1922. The Portland mine, despite a total production from 1894 to the end of 1922 of $54,272,883, and payment of dividends of $11,692,080, had to suspend dividends in 1920 as a result of the stress of the World War. In consequence of the increase in the price of mining equipment this company had to revise its estimates of the profits of working its immense low-grade dumps and to close its mill in July, 1922. Early in 1923 the Cresson mine had completed the installation of its new headframe and hoist, which is capable of sinking to a depth of 3,000 feet, and soon commenced sinking a shaft to the 1,800-foot level. Production was maintained throughout the year from the 1,700-foot level and above at the rate of 10,000 tons a month. Excellent ore has been found on the 1,800-foot level. The Ajax mine, reopened in 1922 as the Tonopah-Ajax, produced ore in 1923, and in the course of its development has disclosed ore in adjoining properties. Some excellent new ore bodies were encountered in the Granite mine. A new company proposes to reopen the Isabella mine. The properties on the large Stratton estate, which for several years have been operated in a small way by local lessees, were covered in December, 1923, by an option obtained by an Eastern company, which agrees to reopen certain of them and to sink to greater depth.

The Reed-Coolbaugh sulphating plant at Durango, completed in August, 1923, was engaged in treating the complex zinc-lead-copper-silver-gold ores of the Black Bear mine, at Telluride. Considerable Black Bear ore was also sent to the Smuggler Union concentration-flotation plant, where part of the ore was saved as lead concentrates on tables and the remainder as a complex concentrate in the flotation cells. The Smuggler Union-Humboldt mine and the Tomboy mine, at Telluride, continued throughout the year to ship amalgamation silver-gold bullion to the mint and large quantities of concentrates both to Durango and to Leadville. In the dismantling of the Liberty Bell mill much gold bullion and matte was recovered. Considerable development work was done in the Ophir district, San Miguel County. The Atlas mine and mill, in Ouray County, were operated at about the same rate as in 1922, but the output of the Mountain Top mine will not equal that of 1922. Several hundred tons of gold ore were shipped from the May Day mine, in La Plata County.

The Cresson Gold Mine, Cripple Creek District, Colorado

Early in 1923 the Sunnyside concentration-flotation mill at Eureka, having a capacity of 50 tons a day, was reopened and large quantities of lead-silver-gold concentrate were steadily shipped to Durango and zinc concentrate to Oklahoma and Texas gas retort furnaces. Properties at Silverton that were idle in 1921-1922 were reopened.

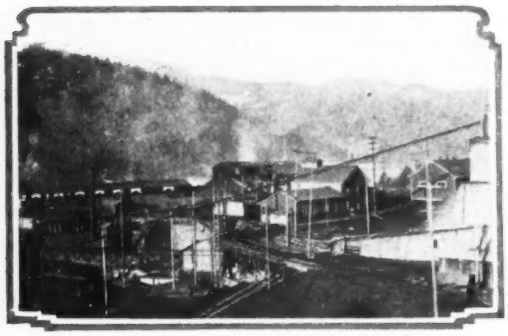
In July, 1923, shipments of lead-silver concentrate at the rate of 2,500 tons a month began to reach the railroad at Shirley over the 7½ mile aerial tram from the Rawley concentration-flotation mill, at Bonanza, Saguache County. Owing to financial difficulties this mine and mill were closed in December, but will undoubtedly be reopened later. A new mill was built at the Cocomongo mine and other properties at Bonanza shipped lead-silver ore of excellent grade. The mines at Creede were not active but those in Hinsdale County continued the advance made in 1922.

The Eagle zinc mines of the Empire Zinc Co., on Battle Mountain below Red Cliff, which have been extensively developed since 1918, and were sustained during 1920-22 by large shipments of pyritous silver ore, began to ship large quantities of zinc-iron ore in 1922 to the company's magnetic separation plant and zinc oxide plant at Canon City, and in 1923 doubled its shipments of ore of that class as well as continued heavy shipments of pyrite silver ore to Utah smelters.

The Smuggler concentration mill at Aspen, a steady contributor of silver concentrates in 1922, could not survive the decrease in price of silver with the end

of the Pittman dollar silver in June and ceased operations in August. Shipments of smelting silver ore were continued from Aspen throughout the year but in lessened quantity.

The shipments from Leadville in 1923 declined when silver dropped to the world price, and the pulling of the pumps on the lower levels of the Penrose mine in November, 1923, drove the work to the upper levels in the Down Town Co.'s property. The decrease in the number of lessees on the Yak property in November also cut down the quantity of shipments from this large consolidated group.



The Bunker Hill & Sullivan Smelter (Lead) at Kellogg-Wardner, Idaho

The mines in Gunison County, which have been rather inactive for several years, made an output in 1923 of gold bullion and concentrates from the Carter mine, at Ohio City, of zinc ore from the Akron mines, at Whitepine, and of arsenic ores and small quantities of silver from the White Iron mine, at Madera siding, south of Sapinero.

In Chaffee County lessees made shipments from the Mary Murphy mine at Romley, and from the Lilly and other mines at Monarch. In Custer County considerable lead-silver ore was shipped from the Passiflora mine, at West Cliffe, and the cyanide mill on the Bassick dump was completed and set in operation.

The dredges, the hydraulic and the sluice mines at Breckenridge yielded $200,000 in 1923, as compared with $251,241 in 1922. The mills at Wellington have shipped steadily in 1923 zinc concentrates of relatively high grade, whereas in 1922 shipments were made during only two months. Lead-silver carbonate ores have also been shipped from Breckenridge.

The London mine, on Mosquito Pass, Park County, continued to ship high-grade gold ore, and a cyanidation mill was under construction to treat London low grade ores. The Magnolia mill produced gold bullion for a time, and several cars of high-grade gold ore were shipped from the reopened Orphan Boy mine. The Fairplay dredge continued throughout the year regular shipments of gold bullion to the Denver mint.

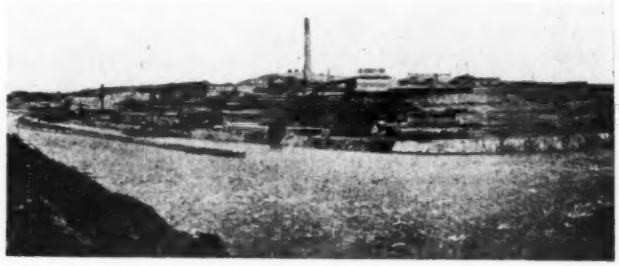
Small shipments of lead-silver ore were made from Montezuma, Summit County. Across Loveland Pass, in Clear Creek County, the Silver Belt tunnel reached its expected lead-silver ore body and immediately became a large producer of both smelting and milling ore. The East Butte Copper Co., a heavy producer of silver concentrates from dump material in 1922, operated its concentration-flotation mill at irregular intervals in 1923, completed the purchase of the Diamond Tunnel-Dives-Pelican group, and did underground development work. The Wasatch-Colorado concentration mill continued to ship lead-silver and zinc concentrates in 1923. The production at Idaho Springs in 1923 was not equal to that in 1922, but considerable development work was done and a new mill was built. The Fairfield, Jupiter-St. Clari, Columbia Tunnel, Theora, Dump Lode and others in the southern part of Gilpin County were worked and much development work and new construction work was done at Evergreen and Ferigo.

Boulder County contributed gold ore from the Wood Mountain mine and silver ore from the Yellow Pine and Caribou mines.

Idaho

Increase Nearly 50 Percent Over 1922—Largest Gains in Production of Lead and Zinc

The value of the gold, silver, copper, lead and zinc produced from ore mined in Idaho in 1923, according to a statement issued by the Department of the Interior, based on an estimate by C. N. Gerry, of the Geological Survey, was about $26,717,000, compared with $18,031,555 in 1922. There was a marked improvement in the general conditions of mining and marketing ores and metals and a decided increase in the production of gold, silver, lead and zinc.



Anaconda Plant at Great Falls, Montana

The mine output of gold was valued at $685,000, as compared with $501,405 in 1922. A large increase in gold from placers resulted from the continuous operations of dredges at Murray and Featherville, but the output from the Gold Hill and Iowa mine, formerly the largest producer of gold in the state, was much less than in 1922.

More Silver Mined

The output of silver increased from 6,081,865 ounces in 1922 to about 7,650,000 ounces in 1923. The value, however, was about the same as in 1922 as a result of the lower price of silver after the expiration of the Pittman act. The Hercules and Tamarack and Custer properties were again active producers from silver-lead concentrate shipped to East Helena, Mont., but the output of the Hecla mine was greatly reduced by a disastrous fire that destroyed the surface plant in July. In the Coeur d'Alene district, which produced about 6,000,000 ounces of silver, or 78 percent of the total for the state, the largest producers were the Bunker Hill and Sullivan, Morning, Hercules, Hecla, Tamarack and Custer, Gold Hunter, Success, Callahan and Caledonia mines. In other districts of the state the Talache, Ramshorn, Independence, and Idaho Continental mines supplied much silver.

Increase in Copper

The output of copper increased from 3,282,842 pounds in 1922 to 3,900,000 pounds in 1923, and the value increased from $443,184 to $561,600. The Idaho Metals Co., at Mackay, was the largest producer of copper, from first-class ore shipped to Garfield, Utah.

Large Gain in Lead

The output of lead increased from 195,834,205 pounds in 1922 to 244,177,000 pounds in 1923. The value increased from $10,770,881 to $17,702,000, a larger proportionate gain, owing partly to the increase in the price of lead, which averaged about 7.25 cents in 1923. The lead output of the Bunker Hill mine was far more than that of any other mine in the state.

Zinc Increases More Than 500 Percent

The recoverable zinc in the ore mined increased from 4,109,131 pounds in 1922

to 26,200,000 pounds in 1923, and the value increased from $234,220 to $1,731,800. The Callahan Zinc-Lead Co. produced both lead concentrate and zinc concentrate from January to October, when its shipments ceased. The zinc concentrate contained more than 23,000,000 pounds of zinc (gross). Considerable zinc concentrate was also shipped from the Morning and Success mines. Most of the zinc material was smelted at eastern plants, but late in the year the Anaconda Copper Mining Co. gave encouragement to the operators of zinc mines of Shoshone County by bidding for zinc ore for the electrolytic plant at Great Falls.

Dividends amounting to $4,756,750 were paid by the Bunker Hill, Hercules, Hecla, Federal and Tamarack and Custer mining companies.

Montana

Increase in Price of Metals Greatly Stimulated Production

The value of the gold, silver, copper, lead and zinc produced from mines in Montana in 1923, according to a statement just made public by the Department of the Interior, based on an estimate by C. N. Gerry, of the Geological Survey, was $56,656,000, an increase from $44,925,949 in 1922. Increased metal prices stimulated the mining of copper, lead and zinc ores, and the output of both gold and silver increased with the smelting of more copper ore.

Greater Output of Gold

The value of the output of gold increased from $1,656,757 in 1922 to $1,796,500 in 1923. The production of gold from copper ores was naturally much greater, as the mines of Butte were producing regularly, but it did not reach past records. The total output of gold from placers and gold ores was less than in 1922, though several properties made a large output. The largest producer of gold was the Anaconda Copper Mining Co., which operates several mines at Butte.

Output of Silver is Greater, but Value is Less

The mine output of silver increased from 12,468,151 ounces in 1922 to 13,965,000 ounces in 1923, but the value decreased to $11,018,300 on account of the drop in the price of silver in June. Though most of the increase in output was due to the resumption of the mining of copper ore at Butte, a large part of the silver produced was obtained from zinc ore, lead-zinc ore, and lead ore, which were mined in larger quantities. The three largest producers of silver were the Anaconda Copper, Butte and Superior and Elm Orlu companies.

Nearly Ten Million Dollars More in Copper

The output of copper increased from 165,754,442 pounds in 1922 to 224,132,000 pounds in 1923. The value of the output increased from $22,376,850 to $32,275,000. The Anaconda Copper Mining Co. was producing copper at the rate of more than 16,000,000 pounds a month and the East Butte Copper Co. more than 1,000,000 pounds a month. Though experienced miners were scarce, mining and smelting proceeded successfully early in the year while prices were high. Late in the year the conditions were less favorable, as metal prices were greatly reduced and costs remained high. The North Butte Mining Co. closed its mine in June. The largest copper producers were the Anaconda, Colorado, North Butte, Butte and Superior, East Butte, Elm Orlu, Anselmo and Silver Dyke mines.

The mine production of lead increased from 29,767,479 pounds, valued at $1,637,211 in 1922 to 36,500,000 pounds, valued at $2,646,200, in 1923. Besides the lead from the zinc ore and lead-zinc ore mined at Butte from the Butte and Superior, Elm Orlu, Hibernia, Anaconda, Moulton and Poser mines, much lead was produced from the Snow Storm mine.

Gain in Zinc

The output of recoverable zinc in Montana increased from 119,069,818 pounds in 1922 to nearly 135,000,000 pounds in 1923. The value increased from $6,786,980 to $8,920,000. The electrolytic zinc plant near Great Falls was active treating concentrate shipped principally from the Butte and Superior, Elm Orlu and mines of the Anaconda Co. Other large zinc producers were the Poser, Anselmo, Moulton, Hibernia and the Emma mine of the Butte Copper & Zinc Co. The concentrate shipped from the Butte and Superior mine during the first half of the year contained 42,000,000 pounds of zinc, but the output was decidedly decreased late in the year.

The Anaconda Copper Mining Co. paid $6,750,000 in dividends in 1923, and the Butte Copper & Zinc Co. paid $300,000.

California

Gold Mines Show Decrease in Output—Copper and Lead Production Increase

The value of the gold, silver, copper and lead produced in California in 1923 is estimated at $20,646,400, as compared with $21,332,168 in 1922, as announced by the Department of the Interior, through James M. Hill, of the Geological Survey. The noteworthy features of the year were the production of 4,560,000 pounds more copper and of 2,100,000 pounds more lead than in 1922. The silver yielded by the lead and copper ores brought the production of silver up to a figure larger than that for 1922. The gold mines were not so productive as in 1922, notwithstanding the large developments under way at several gold-producing camps. Apparently no zinc mines were operated.

Less Gold Produced

The gold produced in 1923 is estimated at 642,200 ounces, valued at $13,274,300, as compared with a value of $14,670,346 in 1922. Apparently the reduction was due to a decrease in the output of the deep mines, for the dredges, which normally yield 90 percent of the placer bullion, were more productive than in 1922. Several of the larger deep gold mines in the state were not operated at

Carson Hill Gold Mines, Melones, California

full capacity during the year. Considerable work was done in developing gold veins in the Allegheny district, Sierra County, and the Grass Valley district, Nevada County, and both districts will probably show an increased output as compared with 1922.

Some Gain in Silver

The silver produced in 1923 is estimated at 3,444,540 ounces, nearly 345,000 ounces more than in 1922. This slight increase is due to the silver obtained from the copper and lead ores. The Kelly mine, at Randsburg, maintains its preeminence as a silver producer, not only in California but in the United States.

Big Figures for Copper and Lead

The output of copper in 1923 is estimated at 27,098,300 pounds, about 4,560,000 pounds more than that in 1922. This great increase was due not only to the enlargement of operations in the Engels and Walker mines but to the resumption of mining and smelting in the Shasta district. The Mountain copper smelter was in operation four months prior to December, and the United States smelter at Kennett was blown in late in November. The Calaveras Copper Co. made preparations to reopen its smelter at Copperopolis but did no smelting in 1923.

The output of lead in 1923 is estimated at 8,400,700 pounds, nearly 2,100,000 pounds more than in 1922.

Apparently no zinc mines were in operation, but a few tons of zinc may have been recovered from ore taken from the Towser mine, in Inyo County. In 1922 the zinc output of the state amounted to 3,012,950 pounds, most of which was produced at the plant of the Shasta Zinc & Copper Co. at Winthrop, which was not in operation in 1923.

In Amador County the Central Eureka, Kennedy and Plymouth mines were the largest producers, but the Argonaut mine resumed production in July and by September was back to normal. Ore of better grade than usual was opened up at the Plymouth mine, and high-grade ore was discovered at the Kennedy and Moore mines.

In Butte County there was little deep mining. The development of the Surcease mine by the Gruss Mining Co. was stopped in March. The output of the county was made chiefly by dredges at Oroville and near Chico, though some placer gold was taken from drift mines in the vicinity of Magalia, Enterprise, and Stirling City.

The chief producers in Calaveras County were the Carson Hill mines, which made about a normal run. The Borden dredge and the Victor Land & Mineral Co. continued operations. The Lucky Jim and Prosperity mines, near San Andreas, were reopened, and a 20-stamp cyanide plant was installed at the Prosperity. The Calaveras Copper Co. began cleaning up early in the year, and according to report the mill was to start in July, but the slump in the price of copper apparently postponed the execution of the plans for production. The Lone Star mine, at West Point, produced regularly.

The Cerro Gordo, Argus, Darwin, Estelle, Slate Range, Santa Rosa and Tecopa mines were productive in Inyo County. The largest producers were the Darwin, where some additions to the mill were made in the fall, and the Tecopa.

Ferguson—U. S. Geol. Survey

White Caps Gold Mine, Manhattan, Nevada

The Yellow Aster and Black Hawk mines were the largest producers of gold in the Randsburg district, Kern County, though some bullion was milled at other mines, notably the King Solomon, Operator (old Val Verde), Schade, Little Butte and Baltic. Dry washing on a large scale was under way at Summit Diggings and a dredge was put in operation in Rand Wash about a mile south of Randsburg.

At Grass Valley, Nevada County, there was considerable activity throughout the year and a boom developed in midsummer, when several Nevada companies entered the district. The Empire, North Star and Idaho-Maryland mines were the largest producers.

The Engels and Walker copper mines continued to be the principal producers in Plumas County and in the state. At the Engels mine the long No. 10 tunnel was completed and the raise to the upper workings was started. The mine maintained well its rate of output, producing 7,398,106 pounds of copper, 82,852 ounces of silver, and 1,318 ounces of gold during the first six months of 1923. At the Walker mine the old 250-ton flotation mill was operated at its full capacity throughout the year, and a new 600-ton flotation plant was put in operation in November.

Nevada

State Shows Marked Improvement Over 1922 Record—All Production Increased Over Previous High Record of 1918

The value of gold, silver, copper, lead and zinc produced from ore mined in Nevada increased from $15,705,609 in 1922 to $23,967,100 in 1923, according to a preliminary statement of the Department of the Interior based on figures compiled by V. C. Heikes, of the Geological Survey. The increase in the prices of copper, lead, and zinc and a general improvement in mining conditions resulted in an increase in all metals, the combined value of which was greater than in any other year since 1918.

Large Increase in Output of Gold

The output of gold increased from $3,297,384 in 1922 to $4,131,100 in 1923, on account of the resumption of the mining of copper ore and a large increase in the quantity of gold and silver ore. The order of the large producers of gold was changed by a marked increase from Gold Hill and Ely and a decrease from Elko County and dredge operations. The United Comstock property, at Gold Hill, Storey County, was the leading gold producer of the state and the Nevada Consolidated mine, at Ely, was second. Other mines that produced more than $150,000 in gold were the Tonopah Extension, Elkoro, White Caps, West End, Tonopah Mining, and Tonopah Belmont. Notable but smaller producers were the Round Mountain, Goldfield Consolidated, Richmond Eureka (speiss), Consolidated Virginia, Ophir, Rochester Silver, Great Western, Gold Canyon dredge, Prince Consolidated (tailings), and Comstock Leasing Co. One of the salient features of the year was the constant and successful operation of the White Caps mine, at Manhattan. The output of gold from Storey County (Comstock district), increased from $298,409 to $905,100, but that of Tonopah decreased from $1,179,302 to $1,102,200, and that of the Goldfield district decreased to $89,300.

More Silver but of Less Value

The production of silver increased from 8,619,587 ounces in 1922 to about 10,450,000 ounces in 1923. The value, however, was slightly less than in 1922, on account of the decrease in price from $1 an ounce early in the year to about 65 cents in June. The Tonopah district produced about 5,130,000 ounces of silver against 5,436,080 ounces in 1922, as there was a decided decrease after the expira-

tion of the Pittman act. The mines of the Comstock district increased their output from 329,644 ounces to about 1,316,000 ounces. The largest producers were the Tonopah Extension, United Comstock, West End, Tonopah Mining, Tonopah Belmont, Betty O'Neal, Candelaria, Rochester Silver, Tonopah Divide, Prince Consolidated (tailings), and Nevada Packard mines. Though some of the companies had small incentive to mine silver ore when the price of silver dropped to 62 cents an ounce, the Betty O'Neal, Candelaria, Tonopah Extension, and United Comstock companies increased their production immensely in 1923.

NEARLY THREEFOLD INCREASE IN COPPER

The output of copper increased from 23,133,091 pounds in 1922 to about 64,900,000 pounds in 1923, and the value from $3,122,967 to $9,345,600. The Nevada Consolidated Copper Co., at Ely, produced copper at the average rate of about 5,000,000 pounds a month and rebuilt its concentration plant. Shipments to the smelter at McGill from the property of the Consolidated Copper mines were resumed in June and shipments of first-class copper ore were made from the Boston Ely mine.

LEAD OUTPUT ALMOST DOUBLED

The output of lead increased from 9,389,182 pounds in 1922 to 18,200,000 pounds in 1923, and the value from $516,405 to about $1,320,000. The Simon Silver Lead Mining Co., in Mineral County, was the largest producer of lead in the state. In the region near Pioche more than 6,000,000 pounds of lead was produced, partly from tailings. More than 400,000 pounds of lead each was produced by the Simon, Prince Consolidated (tailings), Virginia Louise, Nevada United, Combined Metals, Bristol Silver, Yellowpine, Richmond Eureka, Leadville, Panther, Spruce Monarch, and Eureka Holly mines. The increase in the price of lead also stimulated many other operators.

Phelps-Dodge Mine Plant, Tyrone, New Mexico

GREAT INCREASE IN OUTPUT OF ZINC

The recoverable zinc in the ore mined increased from 2,618,710 pounds in 1922 to about 14,000,000 pounds in 1923. The Yellowpine Mining Co. was a regular shipper and the largest producer. It was followed by the Combined Metals, at Pioche; the Simon mine, near Mina; the Consolidated Copper mines, near Ely; and mines near Goodsprings. The price of zinc increased to about 6.6 cents a pound, and the output was valued at $924,000.

DIVIDENDS PAID

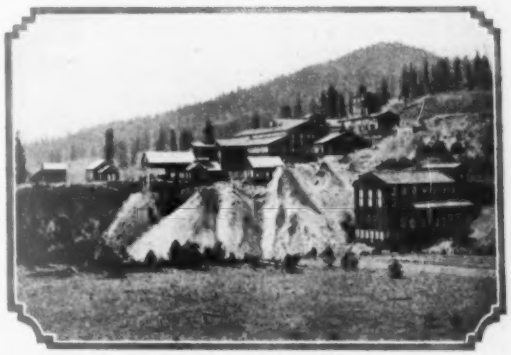
The published dividends paid by Nevada mining companies in eleven months of 1923 amounted to $1,220,300. The largest contributors were the Tonopah Extension, Tonopah Mining, Tonopah Divide, Tonopah Belmont, West End, and Betty O'Neal companies. New mills were completed or in course of construction at the Bluster, Eureka, Holly, Consolidated Cortez, Hilltop Nevada, Nevada Bellehellen and Manhattan Consolidated mines.

New Mexico

Value of Metal Output More than Doubled, Each Metal Showing Increase in Value of More than 100 Percent

The metal mines in New Mexico produced $550,000 in gold, 796,000 ounces of silver, 3,900,000 pounds of lead, 67,200,000 pounds of copper, and 16,300,000 pounds of zinc in 1923, having a total gross value of $12,232,000, as compared with $412,693 in gold, 752,240 ounces of silver, 3,012,223 pounds of lead, 31,937,207 pounds of copper, and 4,496,806 pounds of zinc in 1922, having a gross value of $5,898,446, according to the Department of the Interior, as reported by C. W. Henderson, of the Geological Survey. The production of each metal thus showed an increase in quantity and an increase in aggregate gross value of more than 100 percent.

The Chino Copper Company's 12,000-ton mill at Hurley was operated steadily, treating about 8,000 tons of ore a day. This company produced ore and concentrates containing 56,600,000 pounds of copper, as compared with 29,508,582 pounds in 1922. Improvements made in flotation equipment during the last quarter of the year resulted in better recovery. The Empire Zinc Company's magnetic separation mill at Hanover was operated steadily, the product, a high-grade zinc sulphide, going to the Colorado zinc oxide plant at Canon City. Lead ores were shipped from Hanover. Lead-zinc sulphide ores were shipped by lessees from the Ozark Company's mine at Kelly. Siliceous ores carrying copper, silver, and gold were shipped from Lordsburg at the rate of 9,000 tons a month. From January to May a large quantity of silver ore was shipped from the Martin dump at Pinos Altos. Silver ores were shipped also from Silver City. The Mogollon Mines Co., at Mogollon, made an increased output of silver-gold bullion from its cyanidation mill, in which considerable custom ore from the district was treated in addition to company ore. This company has acquired new territory in the district and has done much development work. The Sinaloa Co., at Mogollon, was a shipper of silver bullion from January to June, from its cyanidation mill, which was operated on ores from the Deadwood mine.



Bancroft—U. S. Geol. Survey

Republic Gold Mine, Washington

The Aztec mill, at Baldy, was a steady contributor of gold bullion until May 24, when both the old mill and a new mill were destroyed by fire. The North Homestake amalgamation mill, at Whiteoaks, was set in operation in 1923 after two years' idleness. Placer gold was produced at Pinos Altos, Golden, and Elizabethtown.

Washington

Great Increase Reported in Output of Gold, Silver and Copper, While Lead and Zinc Output Was More than Doubled

The value of the gold, silver, copper, lead, and zinc produced from ore mined in Washington in 1923, according to a statement of the Department of the Interior based on an estimate by C. N. Gerry, of the Geological Survey, was $1,016,000, as compared with $580,808 in 1922. Several of the old producing mines, especially those near Republic, Northport, and Index, responded to the

increase in metal prices and resumed production at a normal rate.

Large Gain in Gold

The production of gold increased from $186,965 in 1922 to $316,800 in 1923. The output of gold from the Republic district increased to $277,270, but that of the Boundary Red Mountain mine, in Whatcom County, decreased while the company was doing further development work. The Knob Hill mine was the largest producer of gold in the state, as a result of development work done by the Balaklava Mining Co. The Last Chance mine was operated throughout the year after a long idleness, and siliceous ore from this mine was shipped to Trail, British Columbia, at the rate of about 900 tons a month. The Quilp mine was another large producer of gold, but the output of the Surprise mine of the Northport Smelting Co. was comparatively small.

Increase in Output of Silver

The output of silver increased from 205,046 ounces in 1922 to 210,500 ounces in 1923. Most of the silver came from the increased quantity of siliceous ore shipped from Republic. Few shipments of silver-copper ore were made from Chewelah, and the output of silver from Stevens County was therefore small. The large producers of silver were the United Silver Copper, Last Chance, Ruby, Quilp, Santa Rita, and Old Dominion mines. The Ruby and Old Dominion were the only large producers of silver ore, and their shipments were not regular. Development work at the Old Dominion mine opened silver-lead ore below the 600-foot level, and silver ore was also being developed at the Chloride Queen property.

Great Gain in Copper

The output of copper increased from 317,203 pounds in 1922 to 854,000 pounds in 1923. A large part of the output came from the property of the Sunset Copper Co., near Index, Snohomish County, which resumed mining and milling in April. The United Silver Copper Co., of Chewelah, for years the largest producer of copper in Washington, shipped crude ore and concentrates to Tacoma but at the greatly reduced rate of 100 tons a month.

Lead Output Doubled

The output of lead increased from 1,381,199 pounds, valued at $75,966, in 1922 to 2,793,400 pounds, valued at $202,500, in 1923. Most of the lead ore was mined at the Gladstone mine, near Northport, Stevens County. High-grade sulphide ore and medium-grade carbonate ore were shipped to the Bunker Hill smelter at Bradley, Idaho. The Electric Point mine, in the same district, was idle. Lead concentrate was shipped from the Santa Rita mine, west of Springdale, and other shipments came from the Bead Lake, Addison, Iron Creek, Bonanza, and Young America mines. A new concentration mill for the Daisy mine, in the Summit district, Stevens County, was under construction.

Zinc More than Doubled

The recoverable zinc in the ore mined amounted to about 3,000,000 pounds, more than double that of 1922, the increase resulting from shipments from the Washington Black Rock mine, near Northport. Part of the ore was smelted in the East, and part was treated at the electrolytic zinc plant at Trail, British Columbia. A new mill and power line were completed during 1923.

Oregon

Real Condition Not Shown. Many Properties Reopening, Ready for Production of Metals Early in 1924. *Output Less in* 1923 *than* 1922

The output of gold, silver, copper, and lead in Oregon in 1923 is estimated by the Department of the Interior, from information supplied to James M. Hill, of the Geological Survey, to have had a value of $740,000, which is $88,894 less than the value of these metals produced in 1922. This decrease in value of output, however, does not form a real index to the mining activity of the state, for in eastern Oregon there was much activity in reopening and developing many properties which should be producing early in 1924, and in southwestern Oregon there was also a campaign of development at many places which did not result in immediate production of metals.

The production of gold in 1923 is estimated at 23,310 ounces, valued at $481,818 a decrease of 2,404 ounces and $49,750, as compared with the output in 1922. The decrease is believed to be due largely to scarcity of water for placer mining in both southwestern and eastern Oregon, for some of the deep mines, notably the Cornucopia and Iron Dyke, increased their output of gold.

The silver output in 1923 is estimated at 102,940 ounces, valued at $83,896, a decrease of 48,872 ounces, as compared with the production in 1922. This decline was almost entirely the result of the decrease in production from the Bay Horse mine, at Huntington.

The production of copper in 1923 is estimated at 1,180,000 pounds, valued at $172,304, an increase of 133,475 pounds, as compared with the output in 1922. A large part of the increase was due to greater activity at the Homestead-Iron Dyke mine.

The production of lead declined 48,970 pounds, to an estimated output in 1923 of 28,000 pounds, valued at $2,026. The decrease was largely the result of the curtailment of operations at the Bay Horse silver mine, whose ores are the chief source of lead in the state.

Mining Stimulated by New Smelter

In eastern Oregon, mining in Baker, Grant, and Malheur counties was stimulated by the local market for ore and concentrates offered by the Sumpter Valley smelter. Except for a test run in mid-summer, the smelter was not blown in until October 19, but the company was purchasing ore throughout the year. Some of this ore was sent to other smelters, but stocks were accumulated at Sumpter to permit steady operation after beginning. The smelting company itself has opened some properties in order to obtain fluxing ore to go with the highly siliceous ores normally produced in the district.

There was considerable activity in Baker County, where the largest production came from the Homestead-Iron Dyke mine, the Cornucopia mine, and the Bay Horse silver mine at Huntington.

Mining in Southwestern Oregon

In southwestern Oregon, although there was a general revival in mining, very little ore was taken out from the deep mines, and owing to low water during the early part of the year the placer production was no greater than in 1922. Development work continued at the Gold Ridge, North Pole, Millionaire, and Sylvanite properties. The North Pole made a small output of milling ore. It is reported that the Millionaire company has opened a considerable body of low-grade ore and is contemplating the erection of a 200-ton mill. The Sylvanite mine has some high-grade milling ore, and a cyanide plant has been installed. Near Jacksonville the Bell and Mankin mine has milled some high-grade ore. The Siskron

(*Continued on page* 106)

Pardee—U. S. Geol. Survey

Smelter at Sumpter, Oregon

HOMESTAKE MINE EXAMPLE IN INDUSTRIAL COOPERATION

Pioneer In Mining Industry In Adoption Of This Principle—Entire Plan Outlined In Report Of E. F. Irwin, Chairman, South Dakota Branch, Industrial Division, To 26th Annual Convention, American Mining Congress

One of the interesting pioneers in the realm of industrial welfare work is the Homestake Mine at Lead, S. Dak. Mr. E. F. Irwin, employment manager for the Homestake Mine, in his report to the Industrial Cooperation Division of the American Mining Congress at its 26th Annual Convention, pointed out that his company has been running continuously since 1877 with an average employment of approximately 2,000 men. His report showed many interesting phases of the method of this company, which in the dealings with its men has never had a strike. Believing their method may be of assistance to other mining companies in handling their labor problem, we quote from Mr. Irwin's report as follows:

"MEN and women to be happy and contented should have definite work to do, have amusement, and must be allowed to develop their home and community life largely in their own way. Welfare work to accomplish the most good must help the people of a community in their daily work, their amusement, and their home life. It should be developed gradually and naturally and should never be conducted along fixed lines laid down by a single individual who perhaps lacks full appreciation of human nature. Paternalism should be avoided. The one central idea that each individual employe is a part of the organization—that he is not a machine but a human being—must govern if the work is to be successful.

Company-Owned Houses

"The Homestake Mining Company has never undertaken to furnish houses for its employes. It has encouraged the building of homes by giving free permits to occupy company ground and by advancing the purchase price and allowing the employe to pay on the monthly payment plan with a low rate of interest on deferred payments. After forty years of continuous operation as the sole industry of the community, there are few company-owned houses in Lead.

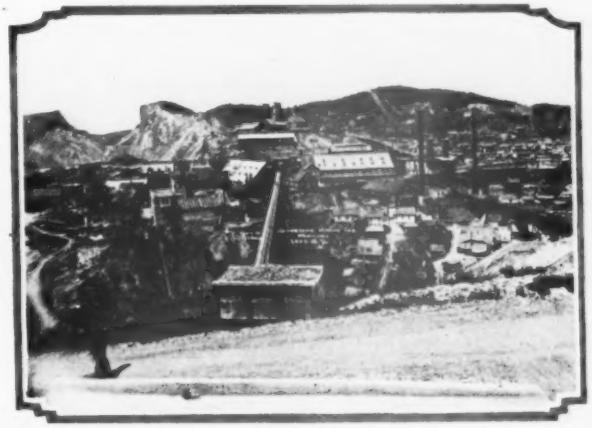
Educational Facilities

"No part of the welfare work at the Homestake has met the needs of the people more fully than the free library and reading rooms. The number of volumes in this library has been increased yearly, the standard of literature consistently raised until now the library contains approximately 14,000 volumes. In the reading rooms are 80 periodicals, of which 2 are foreign. It is used by all nationalities and ages and has grown until now the services of a trained librarian and two assistants are required to care for the needs of its patrons. Beside the excellent collection of books, there is a smoking room provided for the men, and the children have an alcove for their particular use provided with low tables and suitable chairs.

"In conjunction with the library the company also maintains a kindergarten with a trained teacher and from two to three assistants. Children between the ages of 4 and 6 are admitted, and five sessions are held each week.

Recreation

"One feature of the welfare system is the Homestake Recreation Building. This is a three-story brick and stone structure of the latest design, well lighted, heated and ventilated. This building is a community house in the fullest sense. No membership fee is charged and no card or number used. Everybody is welcome and all are treated as special guests by the attendants. The building has always been conducted on the open house plan. No hard and fast rules have ever been made and each guest is allowed perfect freedom so long as his conduct is not objectionable. The only rules are those governing the length of time one set of players may use the various tables and games and specifying days when men, women and children may use the plunge. The average monthly attendance is about 25,000. The building is equipped with a large rest room, billiard tables, gymnasium, bowling alleys. It also includes a moving picture theater and a swimming tank, in which the water is heated, filtered, disinfected and changed frequently. The use of the building by all nationalities and ages has been most gratifying and it has become a great welfare center, where Americanization and humanizing influences are constantly at work.



The Homestake Mining Company, at Lead, South Dakota, Has Been the Most Uniform Gold Producer in the United States

Hospitalization

"The Homestake Company has been a pioneer in the field of industrial medicine, having maintained a medical department since 1879. They maintain a thoroughly modern brick hospital of 35 beds capacity. The company is the only organization known which furnishes absolutely free to its employes and their dependents every type of medical, surgical and obstetric treatment. No charge is made for any hospital care, operating fees or for medicine. The company employs seven physicians and seven graduate nurses, as well as all other help necessary to run the hospital. Forty-three thousand people were taken care of in the dispensary during 1922 and 14,000 visits were made at the homes. Among the duties of the attendant physicians is the physical examination of all applicants for employment, medical supervision of insurance to all employes and promotion of first-aid and safety work.

Insurance

"In 1910 there was established the Homestake Aid Fund Association. A board of five directors was elected by ballot and held their first meeting on July 16, 1910. These five directors, elected annually, with the superintendent of the company as treasurer and the chief clerk as secretary, direct the affairs of the Aid Fund, receiving applications for aid and direct payment of claims. Their decisions are final in cases of dispute. All employes of the company contribute $1 per

"*Industrial Cooperation*"

THE American worker today has completed a year of unexampled prosperity and he faces a year fraught with hope for continued progress and betterment. Both workers and employers in the United States are better off today than are workers and employers anywhere else in the world. Everywhere, except in this country, political and economic disturbances have hampered industry and commerce and in America we are moving steadily forward in industrial peace and harmony. In Europe, still struggling with the baneful economic heritage of the war, millions are out of employment, factories are closed, and industry lies dormant in many sections, while in America we have little, if any, unemployment and that due almost entirely to seasonal fluctuations in industry. Abroad wages are low and in some countries workers are receiving a wage which gives them a mere subsistence. In America our wage is level almost at the peak.

Both workers and management in industry are gaining steadfastly in the movement toward complete cooperation, in the realization of their mutual interests and mutual responsibilities. It is to be noted with satisfaction on this New Year's Day that while there are pending in the Conciliation Service of the Department of Labor between fifty and sixty disputes between employers and workers, these disputes involve a smaller number of men than have been involved in pending controversies at any time in recent years. There is to be noted, too, a growing tendency among both men and employers to resort to conciliation and mediation in industrial controversies before such disputes reach the stage of open strike or lockout. More and more of the disputes laid before federal commissioners of conciliation are brought to their attention before production has been suspended.

Without fostering and extending this tendency toward cooperation we can not hope for a continuance of that prosperity which has blessed American industry and labor during the past year. We must put forth every effort to keep worker and employer mutually satisfied, in order that their exertions may be mutually prosperous and that their prosperity may redound to the best interests of the country as a whole. Unless this is done, we shall lose all that we have gained, and face the perils which have engulfed other nations during the last few years.

JAMES J. DAVIS,
Secretary of Labor.

month and up to the time of the South Dakota Compensation Law the Homestake Company contributed $1,000 per month. Benefits were paid for both accidents and sickness until the State law made it obligatory upon the mining company to pay all compensation for accidents, after which time the Aid Fund has been used to pay sick benefits only. Originally $1 per day was paid for loss of time from either sickness or accident beginning the day of the accident or after the sixth day in case of sickness and continuing for a period of six months from date of disability. Later the time was extended to nine months and the benefits were increased to $1.50 per day.

OLD AGE PENSIONS

"The company began the practice of retiring its old employes on account of old age or physical disability July 1, 1917. The basis of computing rate of pay after retirement is as follows: 25 percent of last year's full play, plus $10 per year for each year's service with the company, but in all not to exceed $600 per year. A pension is also paid to the widows of the employes who lost their lives by accident prior to the enactment of the State Compensation law. Each woman entitled to this pension is paid $30 per month, with an additional $5 for each child under 16 years of age.

METHOD OF EMPLOYMENT

"The Homestake Employment Department was started in 1904. Previous to that time men were hired by the foreman and bosses. For several years men for the mine were hired through the employment office as there were no rules or precedents to follow. All labor is now hired by the employment office and an application blank is filled out and signed by the applicant, physical characteristics, date and place of birth, weight, height, color of hair and eyes, condition of health, personal history, religious and political affiliation, name of nearest relative and at least one good reference being recorded. Later when the employes' insurance was put into force, all applicants were required to pass a physical examination. Early in the work it was found that men are greatly influenced by their first reception. The employment office is the company's front door and the applicant is made to feel at home and given to understand that he is employed as an individual and not a mere part of a mass and that the humblest position is just as essential as the highest. The rules of the work are explained and a printed book of rules is handed each successful applicant. He is asked whether he has a place to room and board and if he has not he is directed to several where he can make his choice. When a man leaves the service of the company he gives his reasons when he draws his time. His immediate boss also makes a statement which is recorded as to why the man left. At the end of each month a report is made showing the number of men hired for the month, certain statistics such as nationality, age, married or single, and under what bosses placed, also the number of time checks issued for men leaving each boss and the reasons for leaving as given by the man and boss.

SAFETY WORK

"The company employs a safety engineer. This engineer is the chairman of a Workmen's Committee made up of men from all departments, which meets once each month. The members of this committee report any unsafe practice or condition which they have observed during the month and discuss matters pertaining to safety.

"A Central Committee consisting of the superintendent as chairman and heads of the departments meets once a month and on alternate months they meet with the Workmen's Committee to talk over the suggestions offered and consider other safety matters.

"Seventy-five percent of the Homestake employes are English speaking nationality. The remaining 25 percent are Scandinavian, Austrian and Italian."

IRON ORE PRODUCED IN 1923

Increase In Output And Value In 1923 Estimated At 49 Percent

THE iron ore mined in the United States in 1923, exclusive of ore that contained more than 5.5 percent of manganese, is estimated by the Department of Interior at 70,018,000 gross tons, an increase of 49 percent as compared with that mined in 1922. The ore shipped from the mines in 1923 is estimated at 70,433,000 gross tons, valued at $244,749,000, an increase of 39 percent in quantity and of 55 percent in value as compared with the figures for 1922. The average value of the ore per gross ton at the mines in 1923 is estimated at $3.47; in 1922 it was $3.12. The stocks of iron ore at the mines, mainly in Michigan and Minnesota, apparently decreased from 10,524,279 gross tons in 1922 to 10,314,000 tons in 1923, or 2 percent. The production for 1923 appears to be the third highest in the history of iron mining, having been exceeded only by that of 1917 and 1916.

Lake Superior District

About 85 percent of the iron ore shipped in 1923 came from the Lake Superior district, in which 59,976,000 gross tons were mined and 60,009,000 tons shipped, increases of about 51 and 38 percent, respectively, as compared with the quantities mined and shipped in 1922. The ore shipped in 1923 was valued at $220,710,000, an increase of about 52 percent.

The mines in Minnesota furnished 74 percent of the total iron ore shipped from the Lake Superior district in 1923 and 63 percent of the total of the United States. The mines in Michigan furnished 24 percent of the Lake shipments and 20 percent of the grand total.

Southeastern States

The southeastern states, which constitute the second largest iron ore producing area, including the Birmingham and Chattanooga districts, mined 7,533,000 gross tons of iron ore in 1923, an increase of 36 percent as compared with 1922. The shipments of ore from these states to blast furnaces in 1923 amounted to 7,716,000 gross tons, valued at $16,778,000, an increase in quantity of 38 percent and in value of 73 percent as compared with the quantity and value of shipments in the previous year. The ore consists mainly of hematite, with brown ore and magnetite next in order. The average value of the ore produced in these states in 1923 per gross ton was $2.17; in 1922 it was $1.74.

Western States

The western states that ordinarily produced iron ore, named in the order of their importance, are Wyoming, New Mexico, Utah, Montana, California, and Colorado, and occasionally Idaho and Nevada contribute small quantities. The ore from Wyoming, New Mexico, and Colorado is used for the manufacture of iron at Pueblo, Colo., but much of the remainder of the output is used as a flux in smelting copper and the precious metals. It is estimated that the western states mined 677,000 gross tons of iron ore and shipped 679,000 gross tons, valued at $1,536,000 in 1923, an increase of 38 percent in the quantity mined and of 91 percent in the value of the ore shipped, as compared with 1922. The ore comprises hematite, magnetite, and brown ore.

Pig Iron Output Breaks Record

The production in 1923 of pig iron excluding charcoal iron and including blasting-furnace ferroalloys, according to the Iron Trade Review, was 40,019,129 gross tons. This is the largest annual output yet made, exceeding the high record of 1916 by about one million tons.

PRODUCTION OF ARSENIC IN 1923

REFINED and crude arsenic produced in the United States in 1923 amounted to 14,184 short tons, valued at $2,966,753, or an average value of 10½ cents a pound. The sales of refined arsenic, having a purity of 99.5 percent or more, amounted to 12,192 tons, and the sales of crude arsenic, having a purity of 70 to 95 percent, amounted to 1,992 short tons. Considerable crude arsenic was used in the manufacture of weed killer and distributed to eastern and western railroads for use on their rights of way.

LEAD COMPLAINT DISMISSED

FINDING itself unable to substantiate its charges that the company fixed and maintained standard resale prices for its commodities, the Federal Trade Commission dismissed its complaint against the National Lead Company.

Total expenditure in United States for construction during 1923 estimated at $5,922,900,000 by Copper and Brass Research Association.

Estimates of Iron Ore Mined and Shipped in the United States in 1923 and Actual Output in 1922

District	Ore mined 1922 Gross tons	Ore mined 1923 Gross tons	Ore shipped 1922 Gross tons	Ore shipped 1922 Value	Ore shipped 1923 Gross tons	Ore shipped 1923 Value
Lake Superior:						
Michigan	10,453,578	14,312,000	12,457,856	$43,449,513	14,219,000	$55,128,000
Minnesota	28,768,960	44,498,000	30,209,372	98,903,398	44,611,000	161,995,000
Wisconsin	577,024	1,166,000	794,673	2,455,660	1,179,000	3,587,000
	39,799,562	59,976,000	43,461,901	$144,808,571	60,009,000	$220,710,000
Southeastern States:						
Alabama	5,234,568	6,837,000	5,294,520	$8,791,069	6,968,000	$14,451,000
Georgia	24,149	133,000	28,566	77,636	133,000	310,000
Missouri	58,408	59,000	58,320	244,928	60,000	292,000
North Carolina	17,279	60,000	19,279	49,415	60,000	152,000
Tennessee	156,464	293,000	159,473	418,578	293,000	879,000
Virginia	30,971	151,000	30,359	120,685	202,000	694,000
	5,521,839	7,533,000	5,590,517	$9,702,311	$7,716,000	$16,778,000
Northeastern States:						
Massachusetts	.....	.....	4,368	$21,840	.....	.....
New Jersey	90,359	309,000	90,374	400,356	350,000	$1,435,000
New York	444,381	547,000	191,195	1,049,050	708,000	3,131,000
Pennsylvania	780,836	976,000	782,916	1,022,756	971,000	1,159,000
	1,315,576	1,832,000	1,068,853	$2,494,002	2,029,000	$5,725,000
Western States	491,550	677,000	491,349	$804,402	679,000	$1,536,000
Grand total	47,128,527	70,018,000	50,612,620	$157,809,286	70,433,000	$244,749,000

LEAD AND ZINC IN 1923

Good Gain in Lead and Large Gain in Zinc Reported by the Geological Survey

Mine Production of Lead

THE output of soft lead from mines in the Mississippi Valley and the small output from mines in the eastern states amounted to about 243,000 short tons, and that of argentiferous lead from mines in the western states amounted to about 291,000 tons, a total of 534,000 tons. The corresponding figures for 1922 were 267,441 tons from the Mississippi Valley and 209,408 tons from the western states, a total of 476,849 tons. The southeastern Missouri district made the largest output, 173,000 tons, as compared with 176,768 tons in 1922. The Coeur d'Alene district of Idaho came next with about 122,000 tons, a gain of nearly 25 percent. Utah made an output of about 104,000 tons, a gain of over 50 percent. The imports of lead in ore for eleven months were 28,957 tons, 80 percent of which came from Mexico, and those of lead in bullion were about 72,513 tons, almost wholly from Mexico. The lead content of lead ore and base bullion in bonded warehouses on November 1 was 66,267 tons.

The price at Joplin of 80 percent lead concentrates, which at the beginning of the year was $93 a ton, rose by the middle of March to $121 a ton, then fell by the middle of July to $60 a ton, and again rose by the middle of August to $80. The price remained level until December, rising to about $105 a ton at the end of the year.

Mine Production of Zinc

The recoverable zinc content of ore mined in 1923 was about 623,000 tons, as compared with 472,184 tons in 1922. The output of the eastern states was about 99,000 tons (75 percent from New Jersey), that of the central states about 395,000 tons, and that of the western states about 129,000 tons, as compared with 94,041, 296,430, and 81,713 tons, respectively, in 1922. The upper Mississippi Valley region is credited with an output of about 17,000 tons, and the Joplin district with an output of about 378,000 tons. Oklahoma made the largest output, about 247,000 tons, nearly two and one-half times as much as any other state. In 1923 Montana produced about 67,500 tons, as compared with 59,535 tons in 1922.

The imports of zinc in ore in 1923 and the zinc in ore in bonded warehouses at the beginning and end of the year were inconsiderable.

Zinc concentrates containing 60 percent of zinc were worth $41 in Joplin at the beginning of the year, rising to $50 in March, but declining to $33 a ton in the midyear. The price gradually rose to $40 by the end of August and remained at or near that point until the end of the year.

Refinery Production of Lead

The output of primary domestic desilverized lead in 1923 was about 304,000 short tons, of soft lead about 184,000 tons, and of desilverized soft lead about 62,000 tons, making a total output from domestic ores of about 550,000 tons of refined lead, as compared with 468,746 tons in 1922, which was made up of 185,191 tons of desilverized lead, 209,250 tons of soft lead, and 74,305 tons of desilverized soft lead. The output of lead smelted and refined from foreign ore and bullion was about 65,000 tons, as compared with 63,916 tons in 1922. The total lead smelted or refined in the United States was thus about 615,000 tons, as compared with 532,662 tons in 1922. The output of antimonial lead is reported to be about 13,000 tons, as against 8,075 tons in 1922. The imports of refined pig lead in eleven months were 21,065 tons, as compared with 3,551 tons in the whole of 1922. Of these imports in 1923, 15,478 tons came from Mexico and 3,248 tons from Spain. The imports in 1923 were received almost wholly in the first seven months of the year. The imports of base bullion in eleven months contained 72,513 tons of lead, of which 70,616 tons came from Mexico. The exports of lead of foreign origin in eleven months were about 42,481 tons and of lead of domestic origin about 2,009 tons, as compared with 38,032 tons and 5,823 tons, respectively, in the year 1922. From a total supply of about 636,000 tons of refined lead (exclusive of stocks) there were withdrawn for export or remained in warehouses about 55,000 tons, leaving 581,000 tons available for consumption in the United States, as against 492,705 tons in 1922 and 444,872 tons in 1921.

The average quoted price of lead for prompt delivery at New York for the year was about 7.5 cents a pound, as compared with an average selling price of 5.5 cents in 1922. At the beginning of 1923 the price was 7.3 cents, rising to 8.6 cents in March, but dropping to 6 cents by the middle of July. After a sharp recovery to 6.65 cents in August it remained nearly stationary until December, after which a sharp rise ended with lead selling for about 8 cents a pound at the end of the year.

Smelter Production of Zinc

The output of primary metallic zinc from domestic ores in 1923 was about 485,000 tons and from foreign ores about 2,000 tons, a total of 487,000 tons, as compared with 353,274 tons from domestic ores and 1,003 tons from foreign ores, a total of 354,277 tons in 1922. In addition to primary zinc there was an output of about 40,000 tons of redistilled secondary zinc, as compared with 32,988 tons in 1922, making a total supply of distilled zinc and electrolytic zinc in 1923 of about 527,000 tons, of which 145,000 tons were high grade and intermediate, 75,000 tons select and brass special, and 307,000 tons prime western zinc. The output of the corresponding grades in 1922 was 103,861, 49,980, and 233,424 tons, respectively, a total of 387,265 tons. Of the total output of primary zinc in 1923 about 21,000 tons were made in Arkansas, as against 13,627 tons in 1922; 80,000 tons in Illinois, as against 76,266 tons in 1922; 118,000 tons in Oklahoma, as against 74,537 tons in 1922; and 84,000 tons in Pennsylvania, as against 57,319 tons in 1922.

The imports of foreign slab zinc for eleven months amounted to 591 tons, as compared with 56 tons in 1922. No American zinc was returned in the first nine months of 1923. The exports in eleven months of zinc made from foreign ores were 6,184 tons and those of zinc made from domestic ores were 44,309 tons, as compared with exports of 3,471 and 30,032 tons, respectively, in 1922. The exports of domestic zinc included 3,419 tons of sheet zinc, as against 3,218 tons in 1922. The stock of zinc reported at smelters and in warehouses at the end of November was about 27,000 tons, as against 16,890 at the end of 1922. The apparent consumption of primary zinc in 1923 was thus about 427,000 tons, as compared with 373,094 tons in 1922 and 203,600 tons in 1921.

At the end of November 83,961 retorts were reported in operation out of a total of about 137,000 retorts at active plants, as compared with 81,030 retorts in operation at the end of 1922.

The average quoted price a pound for prime western zinc for immediate delivery at St. Louis in 1923 was slightly under 6.7 cents, as compared with an average selling price for all grades in 1922 of 5.7 cents. The price of prime western zinc at the beginning of the year in the St. Louis market was 7.05 cents, and after declining a little it rose in March to 8 cents. A decline through the next quarter carried the price down at the end of June to 5.77½ cents. By September it rose to 6.55 cents and at the end of the year zinc was selling at about 6.25 cents.

Tailings from the zinc and lead mines at Joplin, Mo., will be converted into bituminized road material.

$100,000,000 OFFER FOR MUSCLE SHOALS

Southern Power Companies Join In Vast Proposal For Development And Distribution Of Power Over Entire South

OF all the interesting developments which have been emerging on the Muscle Shoals question during the last month the joint offer of southern power companies for the distribution of power to be generated at Muscle Shoals holds the center of the stage. This offer, embodying as it does a plan of distribution of power over a united area of the United States more vast than has ever before been contemplated, far exceeds in importance any proposal for Muscle Shoals development yet made. At the request of O. C. Merrill, executive secretary of the Federal Power Commission, the power companies of the South joined in a proposal for the distribution of power over their entire area. This offer was submitted to the Secretary of War on January 21.

Secretary Weeks forwarded to Speaker Gillett the offer with this comment:

"I think this plan, which has many excellent features, should be referred to the committee having jurisdiction over legislation relating to Muscle Shoals." In brief the offer makes the following proposal for development and distribution.

For themselves and in behalf of a group of southern power companies, the Tennessee Electric Power Company, the Memphis Power & Light Company, and the Alabama Power Company propose:

(1) To organize jointly a power company which shall lease, under provisions of the Federal Water Power Act, the power plant at Muscle Shoals for a term of fifty years.

(2) To pay the government for the power so acquired approximately $100,000,000 during the fifty-year term, including maintenance and repairs, or approximately 4 percent on the government's investment in power development on the Tennessee river.

(3) To provide at cost of production 100,000 H. P. for use in connection with the manufacture of fertilizer at Muscle Shoals under such terms as Congress may decide.

(4) To lease the present Sheffield steam plant at Muscle Shoals, or should the government decide to sell that property to pay $4,500,000 therefor.

(5) To undertake the immediate construction of transmission lines at an estimated outlay of $10,000,000, which should make Muscle Shoals power available to the manufacturing centers of the South; this installation to include the adjacent and intermediate territory of Memphis, Chattanooga, Knoxville, and Nashville, in Tennessee, various sections in Georgia and South and North Carolina, reaching as far eastward as Wilmington, N. C., and ultimately as far southward as New Orleans, Mobile, and Pensacola.

(6) To lease the power at Dam No. 3 in event the government provides funds for its construction or, at its own expense, build the dam as a navigation and power project and operate it under the Federal Water Power Act.

Representative Harry E. Hull, of Iowa, member of the House Military Affairs Committee, who initiated the correspondence with the Federal Power Commission which has resulted in this bid being made by power companies of the South to operate Muscle Shoals under a fifty-year lease for a rental of $100,000,000, made the following statement:

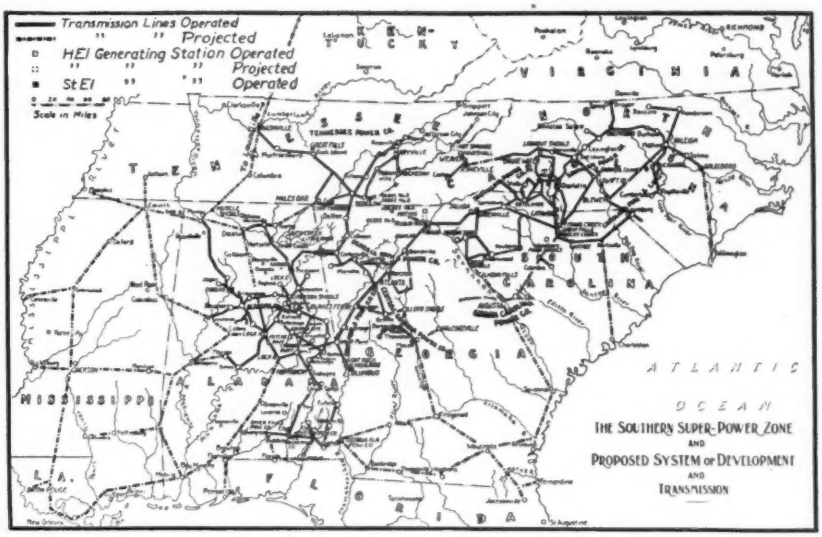
"I am naturally much gratified that this offer has now been made to the Secretary of War in a formal manner, and I hope he will immediately transmit it to Congress. The people of the South are to be congratulated upon the offer, because if Congress accepts it the hydro-electric energy from the South's greatest natural resource—Muscle Shoals—will be equitably distributed all over the South, where it belongs, through a great network of interconnected transmission lines, thus assuring to southern industry in every field of endeavor a constant and large supply of cheap power for the further development of the whole South upon sound economic lines.

"Not only that, but by the reservation in the offer of 100,000 horsepower at actual cost for fertilizer manufacture, the way is cleared for production of a constant and large supply of cheap fertilizers for the benefit of the farmers of the country, exactly in accordance with the policy of Congress. Furthermore, the new bid contains the admirable provision that there will be created by the power companies a public fund of $1,000,000 to be used in electro-chemical research in the interest of agriculture and in the interest of the national defense, thus assuring the use of not only the cheapest possible processes in fertilizer manufacture but also the use of the best processes in producing nitrates as a stand-by in case of war.

"I regard this offer as far and away the best offer the government has ever received for the Muscle Shoals projects. Under it we are not asked to sell or otherwise part with the nitrate plants, which officials of the War Department regard as our greatest national asset as a stand-by in time of war. We are not asked to sell or otherwise part with the Sheffield Steam Plant, also a stand-by to the nitrate plants, although it now appears that if we did want to sell it under the new offer we could obtain $4,500,000 in cash for that one unit alone.

"No other offer that has ever been made will stand comparison for one moment with this offer. There has been brought out for the first time in this offer some actual facts as to the large money value to the people of the United States of the water-power rights and privileges at Muscle Shoals, instanced by a willingness, as shown in the offer, to pay $100,000,000 for these water-power rights, under a fifty-year lease from the Federal Power Commission, surrounded by the safeguards in the interest of the people devised by the conservationists of the country when we first began to pro-

Downstream Side of Spillway Section of Wilson Dam From Jackson Island



tect our water-power natural resources, all of these properties to remain the property of the people, rather than be handed over for a song, as has been otherwise proposed.

"Under this new offer, as shown in the Federal Power Commission correspondence, the entire Muscle Shoals power can be absorbed in the South within a period of not exceeding ten years from the completion of the project. This would involve its transmission to power consuming centers, including the adjacent and intermediate territory of Memphis, Chattanooga, Knoxville, and Nashville in the State of Tennessee; various communities in Georgia and in the Carolinas, extending as far eastward as Wilmington, Birmingham and Montgomery and other sections of Alabama; and with a further extension of the super-power system can be made available in the Mobile and New Orleans districts and in the State of Mississippi and portions of Florida, including the port City of Pensacola.

"The large quantities of cheap power eventually to be made available at Muscle Shoals should go to all of those communities to turn the wheels of the textile mills and the lumber mills, to take the workers to their tasks on the street railways and to take the children to school, to dig the ores in the mines and to pump molasses and oil into and out of the ocean-going tankers at the ports; to light the streets and the homes of more and more communities, and in every other way bring to industry and the people the benefit of electricity, which should be in almost as common use as water.

"In making this statement I want it distinctly understood that my mind is open as to the best disposition of the government's vast interests at Muscle Shoals. Any proposition to receive consideration, in my opinion, must first protect for all time the government's interests in national preparedness and the farmer's interest in the conservation of soils from the production of nitrates in peace time at Muscle Shoals. It must also provide for the completion of Dam No. 3 within a reasonable time so that river transportation on the Tennessee river can me inaugurated. When the government has secured these three essentials it should then accept the best financial offer it receives.

"Not only does the proposed offer provide for a payment to the government of approximately $100,000,000 during the fifty-year period of the lease, as provided under the Federal Water Power Act, but the interest of the farmer in the potentialities of cheap fertilizer production at Muscle Shoals is thoroughly protected by the reservation of a large block of power provided under the plan, for such arrangements as Congress may desire to make, for manufacture of fertilizer in connection with the nitrate plants. The power not so utilized is thus made available to industry throughout the entire South, from the Carolinas to Louisiana, under the protection and regulation of our established national water-power policy.

"It should be pointed out that there is nothing in this plan which would debar Mr. Ford from carrying out his often-expressed desire of doing something for the farmers by the manufacture of fertilizer at Muscle Shoals. The nitrate plants are still available to him, with the necessary power, on whatever terms Congress may decide. I want the government to encourage him or anyone else, and afford every opportunity and assistance in the solution of this most pressing problem with the farmer."

Following the presentation of the above offer, the House Military Affairs Committee called upon Mr. Ford for a statement of his present attitude on Muscle Shoals. Mr. Ford replied, in a telegram addressed to Chairman Kahn of the committee, that his bid still stands. He stated further that the McKenzie Bill providing for acceptance of his bid, with the addition of the Madden amendment which provides for building at government expense a duplicate of the Gorgas steam plant plus the right of way for transmission line 80 feet wide and 100 miles long from the steam plant to the dam meets the sense of his proposal. It is conceded in Congress that the provisions of the Madden amendment entailing this additional expenditure of several million dollars by the government in order to make the proposition acceptable to Mr. Ford holds many obstacles from a legislative standpoint. Against that feature of the Ford proposal for Muscle Shoals, which carries obviously so large a subsidy for the manufacture of nitrates, a protest was filed by the American Nitrogen Products Company which is already carrying on the manufacture of nitrates in Seattle, Wash. This company has addressed a letter to the Military Affairs Committee which reads in part as follows:

"This company is engaged in the manufacture of nitrogen from the atmosphere, employing the electric arc process. * * * If the Ford proposal, or a similar one, should be accepted by Congress, the grantee would have such an enormous advantage that it would be impossible to interest capital in any other air nitrogen project in this country, lacking such or similar advantages. * * * This is not an argument for or against the Ford proposal or any other disposition of the Muscle Shoals proposition. We are simply stating facts in an effort to secure recognition of, and assistance to, existing private plants and to the industry in general."

In commenting on this offer editorially in its issue of January 17th, the Manufacturers' Record, which reflects the opinion of industry in the development of the South and which has contributed so largely to that development in its policy over many years, says:

"This offer, made jointly by nine of the power companies of the South, lifts the whole proposition far beyond anything which has been proposed or even conceived by those who are interested in the largest benefits to accrue to the entire South. It makes Mr. Ford's offer so insignificant by comparison that unless he is willing to meet this offer in every detail and go it one better in every respect, his possible connection with Muscle Shoals power is probably com-

pletely eliminated; but there would still be room for his fertilizer scheme in the interest of agriculture if that was his dominating idea.

"Through the utilization of this power and the harnessing up of all the systems connecting with this plan, there would be developed facilities for marketing electricity, both for light and power, not matched elsewhere in the United States. With so large a new investment added to that which these companies now have they would of necessity be compelled to use their utmost efforts to develop a demand for all the power that could be created, and in this way bring about an enormous expansion of the industrial interests of the South, while at the same time serving farmers with electric light—a movement which should be carried out to the utmost wherever feasible. Out of this development would inevitably come a utilization of every means that science could devise for the production of nitrates and of fertilizers."

COAL AND A DEPARTMENT OF MINES

Senator Oddie, Chairman, Mines and Mining Committee, Favors Bureau in Proposed Department to Handle Coal Problems

CONSIDERATION of problems affecting the coal industry by a Department of Mines is favored by Senator Oddie (Rep., Nev.), chairman of the Senate Committee on Mines and Mining. This view was enunciated by the Senator, following a preliminary meeting of the committee which considered the reports of the coal commission. Subsequent meetings are expected to be held at an early date when the committee will consider the recommendations of the coal commission. In explaining his position Senator Oddie said:

"I believe that the many and complex phases of the coal problem can only be successfully and effectively handled by a single Federal agency charged with the sole responsibility of their supervision, and that such an agency should be provided by the creation of a Department of Mines, with a bureau therein exclusively devoted to coal. This would mean that all the necessary machinery for investigation and research, with authority to promptly act in cases of emergency, would be under a single head, who would at all times have at his disposal all the facts and statistics upon which to make recommendations, in case trouble should arise, and to supply Congress and the President with all requisite information as a basis for legislation whenever legislation is necessary. In my opinion such an arrangement would entirely do away with the frequently recurring periods of paralysis in the industry because of labor disputes and other obstacles which have prevented the smooth functioning of its many branches. The history of the coal mining industry in this country demonstrates very clearly to my mind the utter futility of attempting to insure an uninterrupted and satisfactory coal supply by depending upon such scattered governmental agencies as now exist.

"A Department of Mines can include functions necessary for adequately dealing with the problems of production, transportation, marketing, storage and consumption in connection with the coal mining industry.

"Another phase of the coal question which deserves careful consideration is that of pure fuel. In the metal mining industry processes have been in use for many years which separate the pure metal from the ore and other foreign substances before the metal is marketed. The facilities to be provided by the government for fuel study and research will without doubt show that similar processes can be developed and practically applied to coal. Efforts to effect economies in fuel combustion have been made by the larger users of coal in the industrial field, but the great army of household consumers of coal would greatly benefit by the results to be obtained through a coal bureau in a Department of Mines. Producers and consumers should begin to think of fuel costs in terms of heat units. The successful solution of this problem will result in a vast saving in transportation charges, due to the lighter shipping weight of the product, and the ability to utilize all coal, of whatever grade, which may be located near the point of consumption. An illustration of the large possible saving in this direction is shown by the coal commission's statement that every one of the 45 coal-producing districts in the United States, except the Michigan district, ships coal outside of the state in which it is mined, and that a neighboring coal state—Indiana—ships coal to seventeen states, although itself receiving coal from seventeen mining districts in seven other states.

"The need for a central governmental agency to handle the vast and complex problems incidental to the coal mining industry is stated in the final report of the coal commission.

"The citizens of our country have a right to expect as much assistance from the government in the matter of their fuel supply as they have received from it in connection with their food supply, through the provision which had been made for a great department, with thoroughly equipped specialized and technical bureaus, to study and solve the problems of the agricultural industry as they arise.

"The beneficial effects of proper legislation and the application of improved methods in the coal industry will be felt at every fireside and by every coal-consuming power plant, public utility, and coal burning transportation agency in our country, resulting in a substantial decrease in the cost of living."

RARE METALS IMPORTANT

THE issuance of Bulletin 212, "Analytical Methods for Certain Metals," is announced by the Department of the Interior, through the Bureau of Mines. The metals covered by the bulletin include cerium, thorium, molybdenum, tungsten, radium, uranium, vanadium, titanium and zirconium.

The rare metals are becoming increasingly important to our industries, the Bureau of Mines points out. Rare metal alloys have properties which indicate that we are only on the threshold of the possibilities of their utilization, not only in making non-ferrous alloys but also as special steels. Not only are their uses broadening rapidly but the metals are affecting our industries in other ways. The oxides and some salts are used as pigments; others have medicinal value. The pure metals are made into filaments for incandescent lamps, and targets for X-ray tubes. By their efficient use in alloys, the weight of automobiles is reduced, and the wear and tear on tires and roads is thus minimized; in machine shops they help to give greater efficiency to tools and reduce production costs. Their development has marked a milestone in the progress of civilization.

Copies of the bulletin may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at a price of 40 cents.

ALUMINUM IN 1923

THE output of aluminum in the United States was larger in 1923 than in 1922, owing to the increased demand for aluminum by makers of automobiles and utensils, according to estimates issued by the Geological Survey. In 1922 the domestic output was valued at $13,622,000. The large increase in demand is indicated by the fact that the imports of crude and alloy aluminum during the first nine months of 1923 were 1,500,000 pounds greater than in the same period of 1922, whereas the exports were only one-third as large.

Legislative Review

Turmoil Has Characterized Sessions Since Reconvening Of Congress, January 3—Insurgent Republicans Uniting With Democrats—Drastic Revision Of Rules In House—Many Regulatory Bills Proposed Affecting The Mining Industry—Taxation, Coal And Immigration In The Limelight

FASHIONING their tactics after the manner of the British, insurgent Republican members of Congress in both the House and Senate have taken the coalition bit in their mouth and threaten to wreck the legislative plans of the Administraiton. How far they may succeed no one can tell. Already they have achieved several signal victories by voting with the Democrats and the end is not in sight. They forced a revision of the House rules by which they claim legislation in the House, in particular, may not be thwarted by the will of a small group of leaders; they elected a Democratic chairman of the Senate Committee on Interstate Commerce although the Senate has a Republican majority, and they have opened the way for indiscriminate amendments to tax and tariff bills on the floor of the House, which threatens to subject the tax revision bill to amendment beyond that contemplated by congressional leaders and treasury experts.

Despite this turmoil in the usual placid proceedings of Congress the legislative wheels of the government are now actively grinding and a mass of legislation is being culled over by Senate and House committees under whip and spur of further threatened outburst by the Progressive wings in both Houses.

Tax Cut

Revision of the tax law effective in 1925 in payment of 1924 obligations appears to be a certainty. By direction of a Republican caucus the House Committee on Ways and Means is whipping the tax revision bill into shape under order to report it to the House not later than February 11. The committee gave hearings on the basis of the revision bill as suggested by the treasury and indications are that the measures will pass the House by March 1. Attempts of friends of the soldiers to precede the tax bill by a soldier bonus bill were defeated by the caucus, although it is possible the committee will take up this proposal after the tax revision bill is disposed of. The Senate Finance Committee is expected to give immediate consideration to the bill after it comes over from the House, and to present it to the Senate for early consideration.

Immigration Restriction

Immigration legislation also looms up as a strong possibility and is being hastened by congressional committees in order that the new legislation may become effective on July 1 when the present immigration restriction law expires. Hearings were given by the House Committee on Immigration. Among those heard were representatives of the special immigration committee of the American Mining Congress. The House committee has decided to further restrict immigration by providing that the quota percentage shall be reduced from 3 to 2 percent of aliens in the United States in 1890. In consideration of the new bill the committee took up in detail a draft of a proposed bill revising immigration laws submitted by Secretary of Labor Davis to the chairman of the congressional committees on immigration. Mr. Davis recommended that the quota restriction apply to all countries which would take in Canada, Mexico and South and Central America, now exempt. He suggested that the quota limitation be applied monthly instead of yearly. His bill provides for selective immigration through certificates of consular officers abroad. He proposed that immigration be suspended in whole or in part from all or any country when unemployment in the United States is so widespread as to justify such action. He proposed to admit in excess of the quota limitation such immigrants as may be needed when unemployed labor of like kind cannot be found in the United States. This provision would not apply when a strike or lockout exists or is threatened in the industry seeking to import such labor.

Coal Legislation Delayed

Other committees of Congress have not yet taken up important legislation which is pending affecting the mining industry. The committees on Interstate Commerce of the Senate and House were delayed in organizing but within a few weeks are expected to develop programs for consideration of various measures. The House Interstate Commerce Committee has placed a number of other proposals in advance of coal or railroad legislation.

Proposed coal legislation presented in bills covered the regulation of the coal industry by the Federal Trade Commission in a measure presented by Representative Newton. Authority to take over mines during an emergency is given to the President in a bill introduced by Representative Treadway, while Senator Norris proposed the purchase of coal mines in a scheme for government operation of railroads.

Reversing the action of the previous Congress the Senate this time took the first step in enacting proposed legislation to forbid the discharge of oil from vessels and mines into navigable waters. During the last Congress the House Committee on Rivers and Harbors considered this matter and reported a bill, which was passed by the House but not acted on by the Senate. At this session the Senate Commerce Committee reported a bill and it was passed by the Senate and is now before the House committee for consideration.

War Minerals

Expressing dissatisfaction with the administration of the War Minerals Re-

IMPORTANT BILLS REVIEWED IN THIS ISSUE

MINING—
S. Res. 71: Pittman (D.), Nev. War Minerals.
H. R. 4148: Sutherland (R.), Alaska. Placer Claims.
S. 683: Smoot (R.), Utah. Silver Coins.

COAL—
H. R. 4134: Newton (R.), Minn. Regulation of Industry.
H. R. 5263: Treadway (R.), Mass. Emergency Control.
S. 1945: Norris (R.), Neb. Mine Purchase.

TRANSPORTATION—
S. 1899: Lafollette (R.), Wis. Rate Revision.
H. J. Res. 94: Hoch (R.), Kans. Rate Investigation.

COMMERCE—
S. 1826: McNary (R.), Ore. Security Regulation.
S. Res. 102: Shipstead (F-L.), Minn. Patent Inquiry.
H. R. 5234: McSwain (D.), S. C. Profits Regulation.

LABOR—
H. R. 5348: Wolff (D.), Mo. Strike Breakers.
S. C. Res. 4: Jones (R.), Wash. Child Labor.

PUBLIC LANDS—
S. 1756: Lenroot (R.), Wis. Coal Land Trespass.
S. Res. 64: Harris (D.), Ga. Arsenic Survey.
H. R. 4974: McClintic (D.), Okla. Free Arsenic.
S. 1925: Sheppard (D.), Texas. Potash Resources.

OIL—
S. 1942: Willis (R.), Ohio. Pollution Prohibition.
S. J. Res. 54: Caraway (D.), Ark. Lease Cancellation.

TAXATION—
H. J. Res. 136: Green (R.), Iowa. Tax on Securities.
S. Res. 115: Jones (D.), N. M. Excess Profits.
H. R. 4815: Frear (R.), Wis. Tax Returns.

IMMIGRATION—
H. R. 4098: Box (D.), Texas. Two Percent Restriction.
H. J. Res. 112: Celler (D.), N. Y. Immigration Commission.

lief Act, Senator Pittman introduced a resolution for an investigation by the Senate Committee on Mines and Mining as to the settlement of these claims. Amendment of the law respecting placer mining claims in Alaska, and distribution of silver coins in the West comprised the principal bills introduced affecting metal mining.

Carrying out the President's recommendation for a general overhauling of the freight rate structure, Representative Hoch introduced a bill for a general rate investigation by the Interstate Commerce Commission.

Looking to the future, a large number of bills were introduced designed to check undue profits in wartime, among them a bill imposing a million dollar fine on profiteers.

The only important labor proposal advanced during the month was a suggestion by Representative Wolff that strike breakers be employed at the same pay offered strikers, provided they are informed as to the conditions existing at the scene of the strike.

Agitation over the lease of government oil lands on naval petroleum reserves reached its height when Senator Caraway introduced resolutions cancelling leases heretofore issued on the ground that they were corruptly obtained. The Senator delivered a caustic speech against government officials involved in these leases, including Secretary of Interior Fall, Secretary Denby and Assistant Secretary Roosevelt of the Navy, and Attorney General Daugherty, the latter for failure to enter prosecutions in the case.

In hearings on government department reorganization, before the congressional commission, Secretary of Interior Work recommended transfer of the Bureau of Mines to the Department of Commerce.

Résumé of bills introduced:

MINING

War Minerals

S. Res. 71. Introduced by Mr. Pittman (Dem., Nev.). Referred to Committee on Mines and Mining. It directs that committee to investigate the administration of the War Minerals Relief Act and to report its findings and recommendations to the Senate.

Placer Claims

H. R. 4148. Introduced by Mr. Sutherland (Rep., Alaska). Referred to the Committee on Mines and Mining. It amends the placer mining law of Alaska to read as follows:

"That no placer mining claim hereafter located in Alaska shall be patented which shall contain a greater area than is fixed by law, nor which is longer than three times its greatest width as determined by a transverse line drawn within the lines of the claim and at right angles to its longest side: *Provided*, That where any isolated parcel of placer ground lies between and adjoins patented claims on all of its sides and is not over 1,320 feet in length this dimensional restriction shall not apply."

Silver Coins

S. 683. Introduced by Mr. Smoot (Rep., Utah). Referred to the Committee on Finance. It proposes an appropriation of $25,000 until July 1, 1925, for the transportation of silver dollars from the Treasury and mints to federal reserve banks, which is designed to increase the circulation of silver in the west.

H. R. 5259. Introduced by Mr. McFadden (Rep., Pa.). Referred to the Committee on Coinage, Weights and Measures. It proposes the coinage of five million 50-cent silver pieces in commemoration of the memorial to Civil War veterans on Stone Mountain, Ga., and in memory of the late President Harding.

COAL

Regulation of Industry

H. R. 4134. Introduced by Mr. Newton (Rep., Minn.). Referred to the Committee on Interstate Commerce. This bill, which seeks to regulate the coal industry, is similar to that introduced by Mr. Newton in August, 1921. While the bill provides for its administration by the Federal Trade Commission, Mr. Newton may later propose its modification so as to provide for its enforcement by either the Department of Commerce or the Interstate Commerce Commission. The bill seeks to charge the coal industry with a public interest, and the basis for its constitutionality is premised on the promotion of the general welfare. The bill calls for gathering and publishing information respecting the ownership, production, distribution, costs, sales and profits in the coal industry. The department charged with enforcement of the bill would be required to investigate the organization, conduct, practices and management of owners of coal lands; financial interrelations between owners, operators or dealers; and whether there exists any combination or relationship which may tend to lessen competition or create a monopoly in the coal industry. The bill confers upon the Interstate

Commerce Commission authority to distribute coal cars to mines. The Geological Survey would be authorized to secure and publish reports on the production of coal. Authority is given the bureau administering the act to require the attendance of witnesses and production of papers with a penalty of not less than $1,000 or more than $5,000 or imprisonment for not more than one year. Penalties are also provided for false or misleading statements to the governing body. The bill also proposes issuance by the President of licenses to operators and dealers at a cost of $10 per year. Persons would be unable to continue in the coal business unless they held such licenses. In case of emergency in the coal industry the bill authorizes the President to fix maximum coal prices and dealers' commission or margin, and to control production and distribution of coal. This authority would include the taking over by the government of the operation of any mine and the payment of just compensation therefor to the owner. The bill forbids intercorporate relationship of persons in the coal industry. It also imposes a brokerage tax of from 15 to 30 cents per ton on sales of coal. The Bureau of Mines is authorized by the bill to investigate storage, standards and inspections for various grades of coal. The bill appropriates $150,000.

Emergency Control

H. R. 5263. Introduced by Mr. Treadway (Rep., Mass.). Referred to the Committee on Interstate Commerce. This bill would give authority to the President to declare a national emergency and to take over and operate mines during a stoppage or threatened stoppage of a steady supply of coal. The bill provides for the payment to operators of just compensation for the use of their mines, and if operators are not satisfied with the amount fixed by the President, they may take the case to the Court of Claims. The bill authorizes the President to fix prices and impose conditions under which coal shall be sold at wholesale or retail. Dealers violating the law would be subject to a penalty equal to 25 percent of the value of the coal involved in the transaction.

Mine Purchase

S. 1945. Introduced by Mr. Norris (Rep., Neb.). Referred to the Committee on Interstate Commerce. The purpose of this bill is to "more effectually regulate interstate commerce." It proposes to incorporate a Federal Transportation Company, with authority to construct and operate railroads in the United States, as well as to construct and lease vessels and operate them between American and foreign ports. To this corporation would be transferred merchant vessels now owned by the government and not used by the army and navy or other government services. Government vessels on inland rivers would also be operated by this corporation. The corporation is declared by the bill to be a government agency for the regulation of interstate commerce and the preservation of fair and reasonable rates in the United States and between foreign countries. The corporation is also given power to develop water powers for use of railroads operated by it.

The corporation is given power "to acquire title to any privately-owned coal mines or to lease any coal lands from the government." No fees or rentals would be exacted of the corporation for the leasing of coal mines on public lands. The corporation is also given power "to condemn and acquire title to any existing railroads, rolling stock, and other necessary railroad property, the stock and bonds of any existing railroad, and to acquire title to any existing railroad," payment for which shall not exceed the valuation fixed thereon by the Interstate Commerce Commission. The corporation would have a board of directors of five persons appointed by the President at $12,000 yearly salary. The treasurer and assistant treasurers of the corporation may be other corporations or banking institutions. Funds to carry out this law would be secured through the issuance of 30-year 4½ percent government bonds, which might be redeemed within 15 years. Income of the corporation in excess of operating expenses would be used in construction of additional railroads, dams, or development of additional coal mines. The corporation is required to acquire sufficient railroad mileage "to fully regulate passenger and freight traffic within the United States." It is directed to build or acquire mileage to connect the Atlantic and Pacific oceans and the Great Lakes and the Gulf of Mexico by as many lines of railroad as may be necessary to accomplish the purposes of the act, and to construct and acquire additional mileage to make the corporation effective "in the regulation of rates." It is provided that any person connected with the corporation shall be fined $25,000 or be imprisoned 20 years for fraud against the government. The bill appropriates $500,000 for organization of the corporation.

TRANSPORTATION

Rate Revision

S. 1899. Introduced by Mr. Lafollette (Rep., Wis.). Referred to the Committee on Interstate Commerce. It proposes to amend the commerce law by authorizing the Interstate Commerce Commission to fix rates so that carriers as a whole, or as a whole in rate groups or territories, will be reimbursed for reasonable cost of service. Such reasonable cost shall be the amount necessary for operating expense and for reasonable capital cost. The latter shall be based on investment prudently required and utilized. The commission would be authorized to prescribe different rates for different sections of the country.

H. J. Res. 94. Introduced by Mr. Hoch (Rep., Kans.). Referred to the Committee on Interstate Commerce. This bill proposes an investigation by the Interstate Commerce Commission of the railroad freight structure as recommended by the President.

H. R. 4797. Introduced by Mr. Shallenberger (Dem., Neb.). Referred to the Committee on Interstate Commerce. It proposes to repeal the Transportation act.

H. R. 5427. Introduced by Mr. Huddleston (Dem., Ala.). Referred to the Committee on Interstate Commerce. It proposes to repeal Section 15A of the Interstate Commerce act and to restore rates which existed prior to August 26, 1920.

S. 1919. Introduced by Mr. Fletcher (Dem., Fla.). Referred to the Committee on Interstate Commerce. It proposes to repeal Section 15A of the Interstate Commerce act.

H. R. 4798. Introduced by Mr. Shallenberger (Dem., Neb.). Referred to the Committee on Interstate Commerce. It proposes to abolish the Railroad Labor Board.

S. 1371. Introduced by Mr. Reed (Rep., Pa.). Referred to the Committee on Judiciary. It proposes to amend Section 10 of the Clayton act by providing that that section shall not apply to dealings or contracts of a common carrier with another corporation, the ownership of which is substantially the same and is in conformity with the provisions of Section 7 of the act.

COMMERCE

Security Regulation (Blue Sky)

S. 1826. Introduced by Mr. McNary (Rep., Oreg., by request). Referred to the Committee on Judiciary. It proposes to create a Corporation Commission of thirteen members at $25,000 per year salary to safeguard the public in its investments in securities, and to prescribe rules for the sale of securities on public stock exchanges. Commissioners would be appointed from reserve bank zones and from twelve leading industries. The bill proposes to require capital stock of corporations to be fully paid up. The corporation would be required to draft a bill for a national incorporation law for the uniform chartering of corporations, which would provide for periodical examination of assets and liabilities of corporations and to pass on the issue and

flotation of their securities. It is proposed that the commission's headquarters shall be at Chicago. The bill would impose a tax of one cent per share of a corporation's stock for administration of the law and an additional one cent per share tax annually for the construction of a hundred million dollar building for the commission.

S. 1596. Introduced by Mr. Capper (Rep., Kans.). Referred to Committee on Interstate Commerce. This bill seeks to amend the Sherman Anti-trust act by requiring persons or corporations selling bonds or stock to file with the Federal Trade Commission a statement of their business and purposes. It provides an appropriation of $50,000.

Water Routes

S. 1436. Introduced by Mr. Reed (Dem., Mo.). Referred to the Committee on Commerce. It appropriates $73,000,000 to make available for navigation the Ohio, Mississippi and Missouri rivers to afford a more direct connection with the Panama Canal and ocean trade which the bill says will cheapen the cost of transportation of coal and ore, among other products, by creating a water route to carry these products of the central section of the country to the Gulf.

S. Con. Res. 2. Introduced by Mr. McCormick (Rep., Ill.). Passed by the Senate. It authorizes a committee of five senators and seven representatives to investigate a proposed nine-foot channel from the Great Lakes to the Gulf, and the navigability of the Mississippi, Ohio and Missouri rivers.

H. R. 3933. Introduced by Mr. Winslow (Rep., Mass.). Referred to the Committee on Interstate Commerce. It proposes the purchase for $11,500,000 of the Cape Cod Canal.

S. 1559. Introduced by Mr. Ransdell (Dem., La.). Referred to Committee on Commerce. It proposes to create an Inland Waterways Corporation to develop government-owned inland and coastwise waterways. The corporation would be operated by the War Department. The bill appropriates $5,000,000.

H. R. 5080. Introduced by Mr. Edmonds (Rep., Pa.). Referred to the Committee on Merchant Marine. It prescribes regulations concerning carriage of goods by sea.

S. 1545. Introduced by Mr. King (Dem., Utah). Referred to Committee on Commerce. This bill proposes to transfer from the Shipping Board to the Interstate Commerce Commission authority concerning rates in merchant shipping.

H. R. 3911. Introduced by Mr. Fairchild (Rep., N. Y.). Referred to the Committee on Ways and Means. It proposes an extra 5 percent duty on imports carried in other than American vessels.

Trade Promotion

H. R. 4517. Introduced by Mr. Winslow (Rep., Mass.). Referred to the Committee on Interstate Commerce. It establishes in the Bureau of Foreign and Domestic Commerce of the Department of Commerce a foreign commerce service, covering commercial attachés, trade commissioners, and other representatives of the bureau in foreign countries. The purpose is to investigate and report upon the economic and commercial aspects of

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Tinkering With It May Do More Harm Than Good

mining and other industries in foreign countries which may interest the United States.

H. R. 4081. Introduced by Mr. Berger (Socialist, Wis.). Referred to the Committee on Foreign Affairs. It proposes to establish a fund of one billion dollars to stimulate trade between producers and manufacturers in the United States and Germany as a means of relieving existing distress in the latter country. The fund would be administered by a commission of five persons appointed by the President and would be available for five years.

H. Res. 145. Introduced by Mr. Fish (Rep., N. Y.). Referred to the Committee on Foreign Affairs. It proposes the appointment by the President of a commission representing agricultural, manufacturing, laboring, financial, and exporting and importing interests of the United States to consider the matter of resuming trade relations with Russia.

Patent Inquiry

S. Res. 102. Introduced by Mr. Shipstead (Farmer-Labor, Minn.). Referred to the Committee on Patents. This bill proposes an investigation by the Senate Committee on Patents of charges of favoritism, discrimination and privileges alleged to prevail in the Patent Office. It is based on the charges of the League of American Inventors that foreigners obtain patents within a few months, while it takes an American several years to obtain a patent. The charges include alleged favoritism to certain firms of patent attorneys, who are said to dictate the policy of the Patent Office.

Weights and Measures

H. R. 4465. Introduced by Mr. Vestal (Rep., Ind.). Referred to the Committee on Coinage, Weights and Measures. It proposes regulation by the Bureau of Standards of the sale and the use of weights and measures in trade and commerce. The Bureau would pass on each type of weight or measure, and types not approved by it could not be used.

Pacific Cable

S. 1722. Introduced by Mr. Jones (Rep., Wash.). Referred to the Committee on Commerce. It proposes an appropriation of $25,500,000 for the construction of a Pacific cable to Asiatic ports, including Manila.

Engineers' Exposition

S. J. Res. 56. Introduced by Mr. Pepper (Rep., Pa.). Referred to the Committee on Foreign Relations. It proposes to invite the states and foreign governments to participate in a World's Congress of Engineers in Philadelphia, October 11-16, 1926, to be held by the American Society of Civil Engineers, American Institute of Mining and Metallurgical Engineers, American Society of Mechanical Engineers, American Institute of Electrical Engineers, Federated American Engineering Societies, and the Engineers' Club of Philadelphia.

Profits Regulation

H. R. 5232. Introduced by Mr. McSwain (Dem., S. C.). Referred to the Committee on Judiciary. This bill seeks to prevent unreasonable and excessive prices on government supplies purchased during war and provides a penalty of five years' imprisonment or a fine not exceeding $1,000,000, a reasonable profit to be determined by the jury.

H. R. 4841. Introduced by Mr. Johnson (Rep., S. D.). Referred to the Committee on Military Affairs. It provides that in case of war the President may conscript the material resources and industrial organization of the country and stabilize prices.

H. J. Res. 128. Introduced by Mr. McSwain (Dem., S. C.). Referred to the Committee on Judiciary. It proposes to promote peace, equalize the burdens, and minify the profits of war. "To take the profits out of war, to require equal service by all, and to deny special profits to any, will be conducive to peace," the resolution says. It proposes a commission of four members of the House Mili-

tary Committee, two members of the Senate Military Committee, the Secretaries of War, Navy, and Commerce, and three representatives of labor, industry and capital to report to Congress next December plans to carry out this principle.

H. R. 517. Introduced by Mr. McKenzie (Rep., Ill.). Reported by the Committee on Military Affairs. (H. Rept. 29.) This bill proposes to restrict expenses by the War Department by forbidding contracts on a cost-plus basis. It is also intended to prevent undue advance in prices and profiteering by authorizing the President to fix prices on government materials during war.

S. Res. 101. Introduced by Mr. Borah (Rep., Idaho). This resolution seeks to prevent war and proposes that war shall be outlawed by making it a crime. Under the bill, nations would bind themselves to punish war breeders and war profiteers. It proposes a code of international law of peace based on equality and justice between nations. It suggests an international court as a judicial substitute for war, modeled on the United States Supreme Court.

Government Purchases

H. R. 5207. Introduced by Mr. Wood (Rep., Ind.). Referred to the Committee on Judiciary. It proposes to create a Bureau of Supply for the purchase of government supplies, to which would be transferred the government fuel yard now operated by the Bureau of Mines.

LABOR

Convict Labor

H. R. 4809. Introduced by Mr. Zihlman (Rep., Md.). Referred to the Committee on Labor. It provides for investigation and report by the Secretary of Labor on convict labor in the United States.

Strike-Breakers

H. R. 5338. Introduced by Mr. Wolff (Dem., Mo.). Referred to the Committee on Labor. This bill would make it unlawful to import or transport labor to the scene of a labor disturbance or strike unless the imported labor is acquainted with conditions surrounding the strike. Such imported labor would be paid the same compensation as that offered the striking laborers. Violation of the law would subject the offender to a fine of from $100 to $1,000.

Child Labor

S. Con. Res. 4. Introduced by Mr. Jones (Rep., Wash.). Referred to the Committee on Judiciary. It proposes to give Congress power to regulate and prohibit employment of children under 16, with concurrent power by the states over the subject.

S. J. Res. 36. Introduced by Mr. Lodge (Rep., Mass.). Referred to the Committee on Judiciary. It proposes a constitutional amendment giving Congress power to prohibit or regulate hours of labor in mines and manufacturing establishments of persons under 18 and of women.

H. J. Res. 98. Introduced by Mr. Tague (Dem., Mass.). H. J. Res. 100. Introduced by Mr. Thompson (Rep., Ohio). H. J. Res. 102. Introduced by Mr. Taylor (Dem., Colo.). Referred to Committee on Judiciary. These are similar to the foregoing.

PUBLIC LANDS

Mineral Reservations

H. R. 4516 and 4972. Introduced by Mr. Leatherwood (Rep., Utah). Referred to the Committee on Public Lands. They propose to authorize the reservation of mineral rights in land exchanged in the Manti National Forest of Utah. They provide that land exchanges under the act of March 20, 1922, on this forest may be conditioned upon the exception and reservation by either party thereto of minerals and the right to remove the same. Where reservations are made in lands conveyed to the government, ingress and egress and the right to use the land for removal of minerals shall be exercised under conditions prescribed by the Secretary of Agriculture and agreed to by the grantor of the lands. Where reservations are made in lands granted by the government it shall be stipulated in the patents that the minerals are reserved and may be removed under laws applicable to the leasing of similar ore bodies owned or reserved by the government.

Coal Lands

S. 1756. Introduced by Mr. Lenroot (Rep., Wis.). Referred to the Committee on Public Lands. The bill makes it unlawful to mine and remove coal of any character, whether anthracite, bituminous, or lignite, from beds or deposits in lands of the United States, or in deposits or beds reserved to the United States, with the intent to appropriate, sell, or dispose of the same. Persons violating the law would be subject to a fine of not more than $1,000 or imprisonment for not more than one year, or both. The bill would not interfere with any right or privilege conferred by existing law.

Arsenic Survey

S. Res. 64. Introduced by Mr. Harris (Dem., Ga.). Passed by the Senate. It calls on the Geological Survey for a report as to the location, amounts, accessibility and availability of all arsenic deposits in the United States which can be used for the manufacture of white arsenic. The resolution states that the supply of calcium arsenate is limited and that its price has greatly increased.

S. J. Res. 60. Introduced by Mr. Harris (Dem., Ga.). Referred to the Committee on Agriculture. It proposes to appropriate $10,000,000 for the purchase and sale by the government of nitrate of soda and calcium arsenate for crop purposes.

Free Arsenic

H. R. 4974. Introduced by Mr. McClintic (Dem., Okla.). Referred to the Committee on Ways and Means. It proposes to place calcium arsenate on the free list.

H. R. 4822. Introduced by Mr. Crisp (Dem., Ga.). Referred to the Committee on Ways and Means. It proposes to exempt from import duties calcium arsenite and arsenate.

H. R. 4106. Introduced by Mr. Collier (Dem., Miss.). Referred to Committee on Ways and Means It proposes to place calcium arsenate on the free list.

Potash Resources

S. 1925. Introduced by Mr. Sheppard (Dem., Tex.). Referred to the Committee on Agriculture. It proposes to appropriate $500,000 each for five years for examinations by the Geological Survey to determine the location and extent of potash deposits in the United States. The bill states that the Survey has become convinced that underground potash deposits exist in the southwestern part of the United States in quantity comparable in nature and amount to the German deposits and that there is reason for exploration over an area of from 200,000 to 300,000 square miles to ascertain the extent of such deposits.

Topographic Surveys

H. R. 4522. Introduced by Mr. Temple (Rep., Pa.). Referred to the Committee on Interstate Commerce. It provides for the completion of the topographical survey of the United States within 20 years, and appropriate $960,000 therefor until June 30, 1925.

Timber Lands

S. Rept. 28. By Mr. McNary (Rep., Ore.). From the Committee on Reforestation. This is an extensive report on the present condition of forest reserves and timber supply. It is stated that the substitution of coal, oil, and electricity for fuel wood, and of steel, cement and other structural materials for lumber is increasing annually at the rate of 1½ percent of the present consumption of timber.

OIL

Pollution Prohibition

S. 1942. Introduced by Mr. Willis (Rep., Ohio). Passed by the Senate. This bill proposes to forbid the discharge of oil into coastal navigable waters from vessels, mines, or other establishments. It would be administered by the War Department. That Department would, by regulation, permit the discharge of

such material as would not affect health or fish or be dangerous to property. Persons violating the law would be subject to a fine of from $50 to $2,500 or by imprisonment for one year. The Department of Justice would conduct legal proceedings to enforce the law and would have the assistance of officers of the government in charge of river and harbor improvements and of the Customs and Coast Guard Service.

Lease Cancellation

S. J. Res. 54 and 55. Introduced by Mr. Caraway (Dem., Ark.). Referred to the Committee on Public Lands. They propose to cancel government leases to the Mammoth Oil Co. on petroleum reserve No. 3 and to the Pan-American Petroleum & Transport Co. on petroleum reserves Nos. 1 and 2, on the ground that they were "corruptly obtained"; were made by private negotiation; are attempts to appropriate public revenues; and are against the public interest.

Royalty Receipts

H. R. 4802. Introduced by Mr. Snyder (Rep., N. Y.). Referred to the Committee on Indian Affairs. It provides that bonuses from oil and gas leases and royalties on the Navajo Indian Reservation be made available for expenses in connection with supervision of the development and operation of the oil and gas industry on the reservation in addition to the civilization of the Navajo Indians in Arizona and New Mexico.

S. 1653. Introduced by Mr. Harreld (Rep., Okla.). Referred to the Committee on Indian Affairs. This is similar to the foregoing.

S. 1622. Introduced by Mr. Kendrick (Dem., Wyo.). Referred to the Committee on Public Lands. It proposes to pay to the State of Wyoming 20 percent of receipts from leases or contracts on naval petroleum reserve No. 3.

TAXATION

Tax-Exempt Securities

H. J. Res. 136. Introduced by Mr. Green (Rep., Iowa). Reported by the Committee on Ways and Means. (House Rept. 30.) It proposes to submit to the states a constitutional amendment giving Congress power to tax federal and state securities which are now exempt. The Treasury Department estimates that there is outstanding $12,309,000,000 in tax-exempt securities.

H. R. 4150. Introduced by Mr. Strong (Rep., Kans.). Referred to the Committee on Ways and Means. It seeks to levy an inheritance tax on tax-exempt securities, ranging from 1 percent on estates up to $50,000 to 25 percent in excess of $10,000,000 and 25 percent of the amount of tax-exempt securities in the estate.

S. 1600. Introduced by Mr. Capper (Rep., Kans.). Referred to the Committee on Finance. This is similar to the foregoing.

H. R. 5091. Introduced by Mr. Dickenson (Rep., Iowa). Referred to Committee on Ways and Means. It proposes taxes on inheritances composed of bonds or other securities on which income is exempt from either normal income taxes or surtaxes. The tax would begin at 1 percent of the amount of the tax-exempt securities of the estate not exceeding $10,000 up to 12 percent on amounts exceeding $200,000.

Excess Profits

S. Res. 115. Introduced by Mr. Jones (Dem., N. M.). Passed by the Senate. It calls for a report from the Treasury Department as to excess profits taxes paid by corporations on 1921 business.

S. Res. 110. Introduced by Mr. Jones (Dem., N. M.). Passed by the Senate. It calls on the Treasury Department for information regarding the distributed and undistributed portions of earnings or profits of corporations for 1922, classified with respect to industries, and showing the number of corporations which have distributed earnings of less than 10 percent; and in groups of 10 percent each up to 90 percent or more of earnings or profits.

Revision Bills

H. R. 4137 and 4138. Introduced by Mr. Oldfield (Dem., Ark.). Referred to the Committee on Ways and Means. They propose a tax of $10 for each $100 stock dividend declared by corporations after May 3, 1921, and up until the time of the passage of this bill and thereafter a tax of $25 for each $100 stock dividend.

H. R. 5324. Introduced by Mr. Beck (Rep., Wis.). Referred to the Committee on Ways and Means. It proposes an estate tax of from 3 percent on estates of $50,000 to 75 percent on estates exceeding $10,000,000.

H. R. 4524. Introduced by Mr. Frear (Rep., Wis.). Referred to the Committee on Ways and Means. It proposes to tax net incomes obtained from municipal and state securities.

H. R. 4811. Introduced by Mr. Frear (Rep., Wis.). Referred to the Committee on Ways and Means. It proposes to reenact the excess profits taxes.

H. R. 4812. Introduced by Mr. Frear (Rep., Wis.). Referred to the Committee on Ways and Means. It proposes estate taxes of from 2 percent on estates of $50,000 to 50 percent on estates exceeding $20,000,000.

H. R. 4813. Introduced by Mr. Frear (Rep., Wis.). Referred to the Committee on Ways and Means. It proposes gift taxes of from 1 percent on gifts between $1,000 and $3,000 up to 25 percent on gifts exceeding $10,000,000.

H. R. 4814. Introduced by Mr. Frear (Rep., Wis.). Referred to the Committee on Ways and Means. It proposes to impose for the years beginning with 1919 the following taxes on net income of corporations not distributed in the form of cash dividends: 5 percent of the amount not exceeding $20,000; 10 percent on not exceeding $100,000; 15 percent on not exceeding $200,000; 20 percent in excess of $200,000.

Tax Returns

H. R. 4815. Introduced by Mr. Frear (Rep., Wis.). Referred to the Committee on Ways and Means. It proposes to open for public inspection tax returns under the revenue law, as well as proceedings and determinations in tax appeals.

H. R. 4833. Introduced by Mr. Beck (Rep., Wis.). Referred to the Committee on Ways and Means. It provides for making available for public inspection income-tax returns in the Treasury Department or the office of the collector for the district in which they are made.

H. R. 4440. Introduced by Mr. Crisp (Dem., Ga.). Referred to the Committee on Ways and Means. It proposes to reimburse taxpayers their reasonable costs in prosecuting tax appeals against additional taxes when it is determined that the taxpayers' original returns were correct.

H. R. 5262. Introduced by Mr. Brand (Dem., Ga.). Referred to the Committee on Ways and Means. It proposes to repeal the present law requiring taxpayers to pay assessments which are disputed, and instead that the government accept bond for the disputed tax, to be paid should the taxpayer be finally held liable therefor.

H. R. 4832. Introduced by Mr. Stengle (Dem., N. Y.). Referred to the Committee on Ways and Means. It provides that taxpayers shall have the right to appear before the Treasury Department or Board of Tax Appeals in connection with taxes, or to be represented by any person they may choose. It would forbid the Secretary of Treasury or the Internal Revenue Commissioner dictating to a taxpayer whom he shall choose as his representative, unless the representative has been convicted of felony, dishonorable act, or fraud.

H. R. 4464. Introduced by Mr. Hudson (Rep., Mich.). Referred to the Committee on Ways and Means. It would exempt local associations of employes of a designated firm, business house, or corporation, in a particular municipality, from payment of income tax.

IMMIGRATION

Restriction Proposed

H. R. 4098. Introduced by Mr. Box (Dem., Tex.). Referred to the Committee on Immigration. It proposes to limit the admission of aliens into the United

States, based on 2 percent of the foreign born in the United States in 1890.

H. R. 3239. Introduced by Mr. Vestal (Rep., Ind.). Referred to the Committee on Immigration. This proposes a general revision of the immigration and naturalization laws, by providing for issuance abroad of certificates to immigrants and for the registration of aliens in the United States. It provides for the admission of skilled labor in excess of quotas in cases where there is a shortage of labor in the United States. It would limit immigration to 2 percent of foreign born in the United States in 1890.

S. J. Res. 50. Introduced by Mr. Harris (Dem., Ga.). Referred to the Committee on Immigration. It proposes to prohibit the immigration of aliens into the United States for five years.

H. R. 4471. Introduced by Mr. Raker (Dem., Calif). Referred to the Committee on Immigration. It provides that immigrants shall not be naturalized unless they read and write English, comprehend the Declaration of Independence and Constitution, and possess a knowledge of civics and American history.

H. R. 4466. Introduced by Mr. Romjue (Dem., Mo.). Referred to the Committee on Immigration. It proposes to prohibit immigration to the United States until January 1, 1930.

H. J. Res. 112. Introduced by Mr. Celler (Dem., N. Y.). Referred to the Committee on Immigration. It proposes a commission of three senators, three representatives and three persons appointed by the President to investigate immigration. The bill says the present immigration laws have been unworkable.

H. R. 4089. Introduced by Mr. Lineberger (Rep., Calif.). Referred to the Committee on Immigration. It proposes to regulate immigration and insure the use of the English language by those admitted to the United States. It continues the present 3 percent restriction law. Immigrants must declare in writing their intention to become citizens of the United States, and within three years must apply for naturalization, a condition precedent to which will be ability to read and write English. Aliens would be required to register annually with the Department of Justice. Immigrants must satisfy the government of their ability to make a living at some form of work. The Department of Justice would divide the country into districts based on a survey of the needs of local development and of industry, in determining what class of immigrants are needed. The bill appropriates $10,000,000.

H. R. 5322. Introduced by Mr. Raker (Dem., Calif.). Referred to the Committee on Immigration. It proposes to exclude and expel from the United States aliens who are members of communistic and similar classes.

H. R. 5320. Introduced by Mr. McReynolds (Dem., Tenn.). Referred to the Committee on Immigration. It proposes to forbid the immigration of aliens to the United States until June 30, 1928.

H. R. 5079. Introduced by Mr. Edmonds (Rep., Pa.). Referred to the Committee on Immigration. It provides for the deportation of aliens who participate in riotous gatherings and meetings at which the destruction of the government is agitated. The bill would be under the enforcement of the Attorney General and carries an appropriation of $500,000.

H. R. 5418. Introduced by Mr. Cable (Rep., Ohio). Referred to the Committee on Immigration. It proposes to deport undesirable aliens, who are classified as those who are convicted of violation of various laws.

GOLD AND SILVER COMMISSION SECURES MINE OPERATORS' VIEWS

BY the end of February it is expected the Senate Gold and Silver Commission will have concluded the reception of testimony of mine operators in the field as to the cause of the present depressed conditions in the mining industry and of suggestions as to legislative relief. The commission, through its field agent, has literally gone to the producer in order to obtain his views on existing conditions. Fletcher Hamilton, who has been conducting field hearings for the commission since September, has by direction of the commission, given every opportunity to producers to come forward with suggestions. Mr. Hamilton is sending to the commission transcripts of the testimony they gave, which will be analyzed, and published in condensed form for the information of the country and as a basis for recommendations which the commission may make. While none of this testimony is yet available in this form it is said that the evidence has covered a wide range of subjects affecting mining, and that it will afford the basis for constructive recommendations for relief of present conditions in the mining industry.

Since Mr. Hamilton entered the field he has conducted hearings at the following points:

Denver, Cripple Creek, Leadville, Ouray and three other points in Colorado.

Deadwood, S. Dak.

Salt Lake, Utah.

Butte and another point in Montana.

Spokane, Wash.

Wallace and Boise, Idaho.

Baker City and Grants Pass, Oreg.

Sacramento, Los Angeles, Bakersfield, San Francisco, and several points on the mother lode and in northern California.

Virginia City, Tonopah, Round Mountain and other points in central and eastern Nevada.

Seattle, Wash.

Four or five points in Arizona and New Mexico.

At the Seattle and San Francisco hearings opportunity was given for Alaskan producers to give testimony.

MINING MEN IN CONGRESS

AMONG the new members of Congress a number have been interested in the mining industry. They include Representative Charles L. Richards, of Nevada, who walked from Austin, 120 miles, to the famous Tonopah Mining Camp during the gold rush years ago. Mr. Richards has had a large part in development of the mining properties in the Tonopah and other mining districts of Nevada. In addition to his mining and other business interests, he maintains law offices at Reno. Mr. Richards is the first native Nevadan to be elected to Congress, having been born in Austin, Nev., and graduated from its public schools. In 1901 he received his A. B. from Leland Stanford Junior University of California, and was admitted to practice law in Nevada. He was elected district attorney at the Tonopah Mining Camp during the gold rush.

Representative C. E. Winter, of Wyoming, who succeeds House Floor Leader Mondell, is also interested in mining.

Representative T. W. Phillips, of Pennsylvania, is engaged in the petroleum, natural gas, coal and manufacturing business.

Representative Everett Kent, of Pennsylvania, sold coal in carload lots to manufacturing plants to pay his way through law school.

A number of the Oklahoma Congressmen are interested in oil and gas, including Representative E. B. Howard, who is an oil and gas producer, and Representative M. C. Garber, who, with his brother, B. A. Garber, opened up the Garber Oil Field in Garfield County, producing oil of the highest gravity.

From a boy in the Pennsylvania coal mines to a position in Congress is the record of Representative J. J. Casey, of Wilkes-Barre, Pa. He was a coal breaker at 8 years of age and worked in and about coal mines until he became a plumber and sheet metal worker, later entering the railroad train service. He has taken an active part in trade union affairs, having been officer and representative of local, state, district, and international labor organizations. He was the first and only person to be elected on a straight labor ticket as a member of the Pennsylvania House of Representatives in 1907 and 1908, and was the author of the employers' liability law which was passed then. He was selected by the State Federation of Labor of Pennsylvania as its representative before the commission to draft the workmen's compensation act for presentation and enactment by the Pennsylvania Legislature. Prior to the 68th Congress, Mr. Casey had been a member of the 63rd, 64th, and 66th Congresses. In the 64th Congress he was the only trade unionist to serve on the Committee on Ways and Means of the House. He was Commissioner of Conciliation of the Department of Labor in 1917, and in 1918 was appointed a member of the Advisory Council to the Secretary of Labor, which prepared a national war labor program. He was also labor advisor and executive of the Labor Adjustment Division of the Shipping Board.

Representative A. S. Prall, of New York, is vice-president of the Steamship Fuel Corporation of New York.

Representative M. D. Hull, of Chicago, is president of the Raymond Concrete Pile Co., contractors and engineers, and Representative J. R. Buckley, of Chicago, is vice-president of the Universal Granite Quarries.

Representative W. H. Sproul, of Kansas, in early life worked in coal, lead, and zinc mines and has been engaged in the oil and gas business.

During the war, Representative W. E. Wilson, of Indiana, was explosive license agent of Vandenburgh County.

Representative A. B. Williams, Michigan, was formerly president of the Michigan Manufacturers' Association, and Representative G. M. Hudson, of Michigan, was a member of the Michigan Industrial Accident Board.

The new chairman of the House Committee on Mines and Mining, Representative John Marshall Robsion, of Barbourville, Ky., was reared on a farm and attended country schools. He received a degree from the National Normal University, of Lebanon, Ohio, and attended the National Normal University, at Ada, Ohio, and Holbrook College, at Knoxville, Tenn. He has the degree of bachelor of laws from Centre College, of Danville, Ky. Mr. Robsion taught for several years in the public schools in Kentucky and in Union College, of Barbourville, where he has practiced law for several years. He is a banker, being president of the First National Bank of Barbourville. Mr. Robsion was a delegate to the Republican national convention in 1916 and was elected to the 66th, 67th, and 68th Congresses.

Although the first session of the new Congress had just begun, several members have announced their intention of retiring from public life on March 4, 1925. They include Representatives McKenzie and Moore (Illinois) and Senator Norris, of Nebraska.

Wm. M. Butler, who is managing the campaign of President Coolidge for election next November, will be a candidate for the Senate against Senator David I. Walsh, Democrat.

MAGNESITE DURING 1923

Production, Imports and Prices

THE magnesite industry in California and Washington has been in good condition throughout 1923. The demand for caustic calcined magnesite, which was particularly active, was met by producers in both California and Washington. Dead-burned magnesite was supplied from mines in Washington and California, but this trade was not so good as it might have been because of the large stocks of Austrian magnesite imported before September 1, wnen the new tariff went into effect. In 1923 the domestic production of calcined magnesite, including dead-burned magnesite, probably exceeded 70,000 short tons, equivalent to 154,000 short tons of crude magnesite. This is practically three times as much as the production in 1922 and is nearly equal to the peak output before the war. The production was about equally distributed between California and Washington.

The imports of caustic calcined magnesite for the first nine months of 1923 were 11,536 tons, of which about 55 percent came from India and most of the rest from Greece. During the same period 47,194 tons of dead-burned magnesite were imported, largely from Austria. This makes a total of 58,730 tons for the nine months, as compared with 72,265 tons of calcined imported in 1922.

Domestic crude magnesite sold at about $14 a ton throughout the year. Calcined magnesite in lump was quoted at $32.50 to $35 a ton during midsummer and $35 to $37 in the fall, but $40 was asked during the early part of the year. Domestic caustic calcined magnesite—ground, put up in sacks, and guaranteed 90 percent to pass 200-mesh screen—sold at $40 to $45 a ton at western producing points, whereas Grecian caustic sold at $50 to $52 a ton at points on the eastern seaboard. Domestic dead-burned magnesite was quoted at $32 to $34 a ton at points in Washington, whereas quotations of similar material, apparently foreign, at points on the eastern seaboard, were $40 to $42 a ton.

Sidney J. Jennings, former president of the American Mining Congress, estimates that between 1493 and 1921 the world produced gold of a total value of $18,370,000,000 and 12,740,000,000 fine ounces of silver. Over half the gold was produced in the last thirty years and over half of the silver in the last forty years.

OUR REFORESTATION PROBLEM

United States Produces More Than One-half World's Supply Of Saw Timber—Our Available Supply Being Exhausted 400 Percent Faster Than New Supply Is Being Grown—Annually Increasing Tax Great Burden

By John H. Haak

THE oldest living thing is a tree. Generations of mankind must come and go before a crop of trees can mature from the planted crop to a forest of commercial timber. We are still every year reaping a harvest of trees from the great store provided by a most bountiful Providence. We are cutting most recklessly and wastefully this great basic raw material.

In 1869 lumber production was valued at $299,644,000. In 1919 it had grown to $1,828,773,000. In 1869 there were employed in the manufacture of lumber 190,160 workers who were paid $58,839,000. In 1919 the workers numbered 610,346, and they received as wages $618,207,000. In 1899 the average stumpage value of timber in the United States was $2.18. In 1919 this average value was $5.02. In 1899 the average value at the mill of all kinds of wood was $11.13 per thousand feet. In 1919 this average value was $30.21. In 1870 the per capita consumption was 345 board feet. In 1906 it was 516 board feet.

Original forested area is estimated to have been 822,000,000 acres. This has now been reduced to 463,000,000 acres. Total approximate annual cut of timber is about 40 billion board feet. The production of mine timbers alone is 293,000,000 cubic feet valued at $56,913,000. 75% of all timber being cut is not being replaced.

A timber famine as to the eastern and central part of the United States is not hypothetical nor distant. It is here. It is evidenced by smaller and poorer houses. Reduction in number of and maintenance of farm buildings. Lumber and paint for a ready-cut one-story five-room house were listed in 1915 at $883 and today at about $2,900, an increase of over 200 percent.

The world depends upon softwood timber for building material and for paper. Hundreds of great shiploads of softwood timber are shipped to the different countries of the world. It is produced and shipped by the American manufacturers to China, Japan and other countries of the Orient in competition with the cheapest labor, working the longest number of hours per day in the world; but turned out from stump to finished product by our manufacturers by the highest paid labor and shortest (8-hour) working day on the Pacific Coast of any country in the world.

The United States produces more than one-half of the world's supply of saw timber. Europe and North America together produce more than 90 percent of the saw timber of the world. There is world-wide as well as national interest in this problem as may be judged by figures made public showing that the world's cut of softwood timber is 10.4 cubic feet, while the growth is only 8.9 cubic feet.

The original forested area of the United States is estimated to have been 822,000,000 acres, and to have had 5,200 billion board feet, divided as follows: 3,400 billion board feet east of the Rockies and 1,800 billions feet to the west.

This forested area has been reduced to 463,000,000 acres, estimated to cut 2,215 billion board feet. Out of this about 136,960,000 acres only have virgin forests. About three-fourths of the present stand of timber is held by private ownership, and this is much the best timber and is most accessible. Somewhat less than one-fourth of this is included in the 159 national forests, the remainder is owned by states and municipalities.

The total approximate annual cut of timber from the forests is about 40 billion board feet, and the total value is placed at $2,232,015,000. The production of mine timbers alone is 293,000,000 cubic feet, valued at $56,913,000. Our remaining forests are being cut at a rate of more than 400 percent faster than the new forest growth is coming on. On this basis, cutting 40 billion board feet per annum from a supply of 2,200 billion board feet, that is being cut four times faster than it is growing, we are within a measurable point of time when our timber supply will be exhausted. Softwood is being cut eight times as fast as it is being replaced and hardwood three times as fast. Seventy-five percent of all timber being cut is not being replaced.

Lumbering adds to the cut over area about 10,000,000 acres annually. Fire now ruins from five to eight million acres, much of which, however, is unmerchantable young timber. Fire and insects are the direct cause for a great annual loss of growing and mature timber, adding to the total of timber cut and deducting from our resources more potential billions of feet. It has been estimated that nearly as much timber has been destroyed by fire as has been cut.

The principal cause of fires is man himself. A recent report of a western state forester, states "that approximately 85 percent of the fires that occurred outside of the national forests were preventable and in most instances

were caused by carelessness." Fire causes are given as follows:

"Smokers 153, lightning 135, hunters 130, incendiary 111, logging 93, brush burning 76, campers 70, locomotives 17, sawmills 16, stockmen 11, road workers 9, berry pickers 5, fishermen 5, miscellaneous 32 and undetermined 10."

We are far from a scientific solution of the solution of a workable reforestation program, but it can be done. We have the land that has in the past produced this great crop of 5,200 billion feet of timber, and certainly that portion more suitable for the growth of timber than any other crop, can and will produce it again. We hear the cry: "Plant a tree for each tree cut." That plan would hardly produce results for who would look out for the trees after being planted, and who would pay the bills for the watchful care of the property and the taxes for 75 to 200 years? That plan may do for the roadside trees but not for commercial forests.

Parts of the southern and northern states and the Pacific Coast states have much land that is more suitable for the growth of timber than any other crop. On these areas this problem can and should be worked out on a scientific basis for the commercial production of trees.

It is too much of a problem for the private land and timber owner. He has his own troubles. The annually increasing taxes are a nightmare to him.

A specific instance in the Pacific Northwest of the increase in taxes on timber land for the very identical acreage is given in the table.

Tax in		Tax in	
1906.....	$3,121	1914.....	$14,414
1907.....	3,376	1915.....	15,578
1908.....	7,391	1916.....	14,284
1909.....	7,870	1917.....	14,688
1910.....	10,095	1918.....	16,656
1911.....	10,079	1919.....	20,908
1912.....	13,705	1920.....	26,101
1913.....	14,971	1921.....	31,328

And what individual in his senses wants to compete with Uncle Sam (who pays no taxes) in the growing and selling of timber? That is what the western timber owner is up against. The Forestry Department sells timber at public sale after request is made by responsible party and a minimum price is named in the advertisement of sale of timber. This party usually gets the tract knocked down to him, and bids do not often run much higher than the minimum stumpage price named. The initial payment is not large, running 10 percent or less than the purchase price. The balance is paid for as cut for the terms of years in the contract, during which time there is no tax of any kind to pay to government, state or county. Also the lucky bidder pays no interest on the balance of the 90 percent of the total purchase price under the contract.

The owner of an individual or private holding is up against all of this. He pays taxes not only on his own tract, but his taxes are increased by the proportion the United States government owns that pays no tax, and who can blame him for anxiously looking for a chance to convert his investment (even wastefully) and buy a lot of tax exempt bonds. The federal government should not force its holdings on the market to be sold at the very low prices prevailing. Its lands should be held as a reserve and a higher minimum price set. A tract recently sold by the government brought stumpage prices as follows: $1.75 per thousand feet on Douglas fir, $2 on red cedar, sugar pine and western white pine, and 50 cents on hemlock. The minimum price that the government might properly set could be two to three times the above sale price. If timber had a value of $5 to $6 per thousand feet, it would then have value enough to save it and economize at the very source. It may surprise some to know that at present on the Pacific Coast, in the fir, spruce and hemlock regions, at least 40 percent of the stand of timber has been wasted in logging operations by being left to stand or lie on the ground to rot or burn because of minor defects.

This question of price or value of stumpage is also directly connected with the fire damage and the reforestation question. Great fires under present conditions inevitably occur in slashings or old timber cuttings because of the great quantity of timber left on the ground. Fires run over this cut area time after time destroying whatever young trees there are starting up and also consume the humus in the soil itself. These fires often spread into green timber and cause great losses. If the land were logged clean, as would probably be the case if the timber had more value, there could be only a light burn from a fire running over the land after the logs, bolts and wood had been removed. This would be very desirable on the Pacific Coast as it would prepare a perfect seed bed for the fir seeds and be ideal for the natural growth of timber. The forest cover conserves the snow and rainfall, acting as a reservoir and releasing the needed water gradually, thus supplying the needs of mankind. The humus in the soil is kept in place, and the land is not washed down the hillsides to creek, river and ocean.

Timber Left to Rot or Burn Around Logging Camp
(Above) Stand of Hemlock Timber Going at Fifty Cents per 1,000 *Feet in Government Sales*

Because of the great benefits accruing from the forests, in which everyone receives his share directly or indirectly, this is a great urgent national problem, and much beyond the individual under the present taxing laws. We cannot afford to wait until the last tree is cut. The soil must be conserved, the water supply must be kept up and the

needed timber must be regrown. There is need of haste. Even if an extensive plan is adopted and carried out there will be a shortage of timber before commercial timber can be grown. A shortage of timber means higher prices to us and to the next generation.

To the lumberman it would seem that there is not sufficient appreciation of the present situation. Certainly there is little cooperation from the general public. As an instance, I will quote from statements sent out by our Department of Commerce at Washington, D. C., that we in the United States are wasting 140,000,000 feet of lumber per annum, merely because the demand from the public is for lumber of even lengths—8, 10, 12 and 14 feet, etc., when a certain percentage of odd lengths to save 140,000,000 feet per annum could easily be utilized. The Forestry Department and many public spirited individuals have done much to create and maintain interest in a reforestation program. This work is bearing fruit and without doubt the present Congress will take a forward step in reforestation legislation during 1924. States should then follow. They, as well as the county and municipality, should have their own forests wherever practical or possible. This will be the leaven in the loaf, and as time goes on the correct solution will be found for each great subdivision of our country. The people will take an interest in their own forests, while the holdings of a private individual might receive but scant consideration.

The United States has been most wonderfully fortunate in the possession of this great resource of softwood timber. It has been a tremendous factor on our phenomenal development. Industries and railroads have benefited largely; immigrant and settler have been enabled to build comfortable homes cheaply and convert the "Great American Desert" to a land of homes and plenty.

The industry employs an army of men. Are we to say to them—"No more jobs for you"? Are we to depend on other countries for our softwood future timber supply, and send the billions of money for such purchases to other countries? NEVER. America can and will grow the trees.

THE STRENGTH OF MINE TIMBERS

By R. P. A. Johnson *

THE scarcity of timber is becoming so severely felt by some mine operators that they accept almost any species of wood which may be available. Other mines are so situated that they still may choose their timbers from several available species. It is customary in either case to consider the strength of the wood as dependent almost entirely upon the species. As a matter of fact the quality of the wood, the grade and the defects are of even greater importance than the species. The quality of material of an inherently weak species as actually delivered is often so much better than the quality of a normally superior species as delivered that the timbers of the poorer species are the stronger. This is especially true in the case of sawed timbers. Unless the sawmill is cutting mine timbers alone, it is very likely to sell its best grade of material for lumber and structural timbers where the specifications require high grades and the prices received are in proportion. The lower grades remaining, as a general rule, go into such products as railroad ties and mine timbers. Obviously mine timbers produced in this way are likely to be below the average strength for the species from which they were cut. It is important therefore that attention be paid to quality and defects if strong timbers are required.

In round timbers this difficulty is not so likely to exist, because the whole stick is delivered and nothing has been selected out of it. Even in round timbers, however, there may be considerable difference in the strength of different shipments. Such factors as rate of growth, quality of the wood, heart rot, knots and other defects may vary in timber from different stands or in different shipments.

"THE Strength of Mine Timbers," by Mr. R. P. A. Johnson, of the Forest Products Laboratory of the U. S. Forestry Service, embodies the results of the many tests made by the laboratory and includes information on defects in timber, which are often of greater importance than the species.

It may be that the operator is in a position where he cannot choose between good and bad timber, but must take what is offered. Even in such circumstances he still can select timber from his yard so that the strongest pieces are put in the most important places and the weaker pieces are put where strength is not so important.

The purpose of this discussion is to furnish information of such a character that factors other than species will receive proper consideration in the selection of mine timbers..

Density

The best criterion of the inherent strength of a piece of wood aside from actual test is its density, or its dry weight per unit volume. Density is a measure of the wood substance present, and the more wood there is in a given volume the greater its strength. In any species, lot, or pair of timbers, other things being equal, the heavier will be the stronger. This means, of course, that the pieces are at the same moisture content and have corresponding defects.

This principle furnishes a visual method of classifying southern pine for strength and it can also be applied to Douglas fir. In these species the heavy dark portion of the annual ring, which is the summerwood, contains more wood substance per unit of volume than the lighter portion of the ring, or the springwood. The summerwood is consequently heavier and stronger than the springwood and timbers containing a high percentage of summerwood are inherently stronger than others.

Defects

Defects are irregularities occurring in or on wood that may lower its strength, durability, or serviceability. The size, number, character and location of defects are more important than species in determining the strength of timber. The defects which materially affect strength are decay, knots, shakes, checks, splits and cross grain.

Decay

Decay is the result of fungus activity in the wood. The fungi actually dissolve out and remove certain constituents of the wood and thus weaken it. The extent of the weakening is sometimes very hard to detect, for it often extends beyond the area which is visibly affected. It is safest to assume that all the wood immediately adjacent to a decayed spot has been weakened, even though it looks sound. One of the worst features about decay is that it is very likely to continue to grow after the stick is put in place. It proceeds much faster in some species of wood than others, but it is safest in any species to exclude all timbers showing any decay when selecting timbers for a place where long life and high strength are required.

Knots and Knot Holes

In considering their effect on strength, no distinction is made between knots and knot holes. Their effect upon a timber used as a column or post is not nearly so pronounced as their effect upon a beam, collar or cap. A knot in

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the middle of the lower side of a sawed beam reduces the strength in the proportion that the diameter of the knot bears to the width of the face. If the knot measures one-fourth of the width of the face, the beam will have but three-fourths the strength it would have without knots. Since knots have less influence on the strength of posts or columns than on beams or caps, it is good practice to put the clearest material in the caps, leaving the knotty pieces for posts.

Knots have much less influence upon the strength of round timbers than of sawed or hewed timbers.

Shakes, Checks and Splits

A shake is a separation of the wood, the greater part of which occurs *between* the growth rings. A check is a lengthwise separation of the wood, the greater part of which lies *across* the growth rings. Splits are checks or shakes extending all the way through the piece. These defects reduce the area of wood acting in resistance to shear when the timber is in service and their effect depends upon the area of the longitudinal section they cover. The only safe way of estimating the extent of a shake is to assume that it extends to the center of the length of the stick.

Pitch Pockets

A pitch pocket is a well-defined opening between annual layers of growth, usually containing more or less pitch. They do not occur in hardwoods. Their effect is the same as that of an ordinary shake, but they are not usually of sufficient length to materially affect the area acting in resistance to shear. A large number of pitch pockets in a timber, however, indicate the presence of general shakes.

Cross Grain

In cross-grained wood the fibers do not run parallel with the axis of the piece. The effect of cross grain on the strength depends upon the angle between the direction of the grain and the axis of the piece. As the angle increases the strength decreases. The direction of the grain will usually be indicated by the direction of the checks appearing on the faces of the piece. When the slope of the grain is not greater than 1 in 20, the reduction in strength can be neglected, but for greater angles some consideration must be given to this factor. The strength of sawed timbers will be reduced about one-half if the slope of the grain is as great as 1 in 8. Part of this reduction, however, will be due to the presence of checks which invariably develop upon seasoning and which always follow the grain. The angle of the grain is much less important in round timbers than in sawed or hewed material.

Insect Holes

Insect holes are of such small diameter that they are not likely to affect the strength of timbers appreciably unless present in large numbers. They are harmful, however, in that they afford easy access for decay.

Species

While species is not the most important factor in selecting timber for strength, it is nevertheless of considerable moment. If sufficient care is taken to secure wood of specific quality and defect limitations, selection may properly be made by species.

As an aid to selection, various species are listed below with figures indicative of their average strength as a beam or post and their toughness or shock-resisting ability. The latter figure gives an indication of their tendency to give warning of failure. Species low in toughness are likely to fail suddenly. The strength values given are based on the average results obtained from small clear specimens. Each of these properties is measured by means of a composite figure. This composite figure is made up by combining test values, both green and air dry, which are indicative of the property. The presence of defects may materially alter the strength and the data given in the table must not be considered an infallible measure of the relative strength to be expected from timbers of different species.

In order that the figures given in the table may be more directly converted into terms of relative strength, the following comparative terms are given:

Strength as a Beam or Post

12,000 to 14,400—Very strong.
10,000 to 12,000—Strong.
8,400 to 10,000—Moderately strong.
7,200 to 8,400—Moderately weak.
6,000 to 7,200—Weak.
5,000 to 6,000—Very weak.
4,000 to 5,000—Very very weak.
Below 4,000—Extremely weak.

Toughness or Shock-Resisting Ability

16.0 to 23.0—Very high.
11.1 to 16.0—High.
7.9 to 11.1—Moderately high.
5.8 to 7.9—Moderately low.
4.0 to 5.8—Low.
2.8 to 4.0—Very low.

Kind of wood	Strength as a beam or post	Shock resisting ability
Coniferous species	(1)	(2)
Cedar, white	5,410	4.82
Cedar, incense	7,930	5.51
Cedar, Port Orford	9,420	9.41
Cedar, western red	7,040	5.23
Cypress, bald	9,030	7.65
Douglas fir (Wash. and Oreg. Coast type)	10,290	8.11
Douglas fir (Rocky Mountain type)	8,520	6.94
Fir, Alpine	6,000	3.73
Fir, Amabilis	7,600	6.99
Fir, balsam	6,370	5.07
Fir, noble	7,780	7.07
Fir, white	7,570	5.58
Hemlock, eastern	8,290	6.89
Hemlock, western	8,920	6.49
Larch, western	10,060	8.15
Pine, jack	7,000	8.18
Pine, lodgepole	7,290	6.18
Pine, southern yellow	10,950	10.09
Pine, Norway	9,420	8.60
Pine, sugar	7,220	5.22
Pine, pinion	6,830	7.00
Pine, western white	8,110	7.28
Pine, white	7,340	6.00
Pine, western yellow	7,200	5.81
Pine, limber	7,140	5.51
Spruce, Engelmann	6,010	4.62
Spruce, red	7,770	6.74
Spruce, white	7,290	6.83
Spruce, Sitka	7,470	8.57
Tamarack	9,400	8.70

(1) Values in this column are compiled from green and air dry values of modulus of rupture and fiber stress at elastic limit in static bending; fiber stress at elastic limit in impact bending; and fiber stress at elastic limit and maximum crushing strength in compression parallel.

(2) Values in this column are compiled from work to maximum load and total work in static bending; height of drop in impact bending.

Kind of wood	Strength as a beam or post	Shock resisting ability
Hardwood species	(1)	(2)
Ash, black	7,660	12.19
Ash, pumpkin	8,850	9.04
Ash, white	10,750	13.53
Aspen	6,230	8.02
Basswood	6,350	5.48
Beech	10,040	12.98
Birch, paper	7,230	14.67
Birch, sweet	11,190	15.38
Birch, yellow	11,270	16.33
Buckeye, yellow	5,930	5.41
Butternut	6,560	8.22
Chestnut	7,090	7.22
Cottonwood, common	6,500	7.34
Cucumber tree	9,180	10.37
Elm, cork	10,610	19.00
Elm, slippery	9,400	16.33
Elm, white	8,500	12.10
Gum, black	8,350	8.45
Gum, cotton	8,750	8.60
Gum, red	8,670	10.21
Hackberry	7,660	14.95
Magnolia (evergreen)	7,990	15.14
Maple, red	9,680	10.65
Maple, silver	7,190	9.71
Maple, sugar	11,260	12.24
Oak, white	10,410	12.94
Oak, red	9,540	13.04
Poplar, yellow	7,240	5.62
Sycamore	7,840	8.00
Willow, black	4,490	9.89

(1) Values in this column are compiled from green and air dry values of modulus of rupture and fiber stress at elastic limit in static bending; fiber stress at elastic limit in impact bending; and fiber stress at elastic limit and maximum crushing strength in compression parallel.

(2) Values in this column are compiled from work to maximum load and total work in static bending; height of drop in impact bending.

NOTES ON MINE TIMBERING AND PRESERVATIVES IN EUROPE

A Review Of Mine Timbering Conditions In England, France, Belgium And Germany—Preservation Of Timber Further Advanced In Europe Than In This Country

By George S. Rice,
Chief Engineer, United States Bureau of Mines.

TIMBERING in mines of Europe differs in application from timbering in mines of the United States, due to inherent differences in mining conditions.

Wood construction is almost never used in shafts and "bottoms" or landings. The European shafts are generally round in section and are lined with iron tubbing, concrete or brick. This expensive construction is used because of the permanent character of most European mine plant installations, as well as for the purpose of fire protection. The principal exceptions noted are found at the shorter lived iron mines of Great Britain. In north Germany, Belgium and France thick beds of water-bearing sands, marls, and clays overlie the coal and saline deposits. To prevent water from entering the mines, iron tubbing is necessary for damming back the water, and extends through these beds to solid strata, impervious to water.

Another cause of difference pertaining to coal mining practice is the almost universal employment in Europe of the longwall system with stowing or back filling.

A third important difference in conditions of coal mining is found in the great depth reached by the mines. In America our deepest coal mine shafts are 1,000 feet in depth. In Europe they are rarely less than 1,000 feet and in the case of some Belgian mines the deepest workings attain 4,000 feet. The rock pressure due to depth causes flowage of the weak coal measure rocks. Brick and concrete arching fails; even reinforced lining, circular in cross-section, has failed in the deepest Belgian mines, so that timbers which can be more easily replaced must be resorted to.

As renewals must be frequent, decay is not a factor and preservatives do not pay under this condition.

Where rock pressures are not so great or where the measures are stronger, as in Great Britain, and some of the less deep continental mines, brick and concrete arching is quite generally used in the more permanent haulageways and treated timber is used in some mines in return airways.

In certain mines in the Pas-de-Calais district of France light reinforced concrete is used to line haulage and ventilation passages, from the shaft close up to the working places. It must be borne in mind, however, that in France, Belgium and Germany, owing to the faulting of the measures, the principal haulageways are levels which cross-cut the strata. The longwall workings are reached by inclines in the coal stratum or else in packed excavations. There are temporary intermediate levels in the coal bed between the principal levels.

The most recent progress in timber substitutes since the writer's previous visits, has been in the introduction of steel arches in the form of 3-inch to 4-inch I-beams bent in an arch and joined by a splice in the center. Wood lagging is used and more recently strips of corrugated iron have been tried as lagging in South Wales and other coal fields of Great Britain. The great advantage of the arching is that even after being deformed by the pressure it still has resistance and the ground does not cave. When the arches become too badly bent down, the passageway is brushed new or restraightened arching is put in. There is very little loss, as soft steel is used and the flanges and web rarely break. In Great Britain heavy steel I-beams are used to a considerable extent in haulageways in place of wood collars. The ends of the beams in some cases rest on top of wood posts and in other instances rest on brick walls.

U. S. Bureau of Mines Photo
Decayed and Broken Timbers on a Mine Dump

In working places, iron props are extensively used in many European mines. Since the workings are almost universally longwall these are made with slip joints or else they are cushioned by resting on wood or there are wood cap pieces. In one mine in Scotland pipes with wood inside, are used for posts, the wood projecting so as to give opportunity for squeezing with distortion. When a main crush comes on, frequently the pipes are bent, but they are restraightened and again used. The ends of the wood props which may have been broomed out are cut off and the combination prop used in some place where the height is less. This goes on until the wood is too short to be used for posts; then it is used in cogs or cribs.

In general, wood posts are largely recovered except in hydraulic stowing, by withdrawing from the edge of the goave, as the face advances. In the case of hydraulic filling it is virtually impossible to recover the timber. While this is a direct loss of face timber, on the other hand, in the permanent roadways, the splendid support given by hydraulic filling prevents the crush and breakage of the larger timbers such as takes place where ordinary dry stowing is being done. Since in the latter case the subsidence is 50 to 60 percent of the thickness of the bed being mined, the crush of posts is inevitable. In the case of hydraulic stowing, subsidence is only 5 or 6 percent to 10 percent (a maximum), of the excavated bed. Such shrinkage can be readily taken care of in the case of permanent roadway timbers by proper cushioning with wedges or foot blocks.

Preservatives

The employment of preservatives for mine timber has made more progress in Europe than in this country, yet it cannot be said to be in general use. In fact, not one mine in ten is doing anything with preservatives. In Great Britain particularly the use of timber preservatives seems to be rare. In a few mines creosoted timbers were found (in use) in the return airways. No definite data was obtainable beyond the general statement that certain creosoted timber sets had been in place for several years. In one mine in Scotland creosoted timber sets were under trial use in a wet return airway. These had been in place for about two years without showing fungus, whereas the untreated timber in the vicinity, it was

claimed, would last only about a year or less because of rapid decay.

In France likewise there appeared to be little use of timber preservatives, the tendency being to use timber substitutes in the permanent roadways. However, it was reported that Aczol was being used at one or more of the mines in the North of France.

In Belgium the general feeling as regards the use of preservatives is that it does not pay, as the ground movement and pressure in Belgian mines is so great that the timbers become crushed before they can decay. However, in a few of the mines of one district timber treatment is employed. These mines, which are in the Charleroi district, are relatively shallow. The timber treated with Aczol is employed in the return airways with most favorable results. Aczol-treated timber was observed in a mine which was said to have been in place 8 years. Timber sets without treatment decayed and required replacement in 1, 2 or 3 years. Fungus did not appear to cling to the treated timber as it did to the untreated timber. In this group of mines 5 to 10 percent of all the timber used is thus treated. The treated timber is used only in permanent passages, which are return airways, where timber is subject to rapid decay. At the Aczol treating plant of this group of mines timber was being impregnated in a closed tank. Two mine trucks of timber are pushed in at one time, the air is evacuated for 30 minutes, and the unheated solution is run into the tank and pumped up to a pressure of 8 atmospheres. There were four pair of trucks of timber treated in 8 hours, impregnating in all 250 pieces of timber. The Aczol treatment is very extensively used in several European countries for treatment of railroad ties.

DR. RICE has but recently returned from a trip to Europe, where one of his missions was an investigation of the mine timber situation. The article presented is taken from his report to the Mine Timber Section, Standardization Division, The American Mining Congress, upon which he is the official representative of the United States Bureau of Mines.

In Germany the latest practice in the Ruhr could not be obtained as it was not practicable to visit the mines at the time the writer was in Germany. Prior to the war (1911) he observed at certain collieries the saturation of the mine timber in an open tank by hot salt brine which was said to be effective in preventing decay, though it was stated it lessened the strength of the timbers. There was said to be some use in Germany of zinc chloride in mine timber treatment, but no definite information was obtained.

In none of the mines visited in Hanover and Saxony, was mine timber treated except in a group of brown coal mines in the Borna field. A compound termed "malenit," was being used, the principal ingredient of which was said to be fluornatrium (Na.F.). The "malenit" was furnished by Becker of Vienna. The material is soluble in water. The treatment is in a closed cylinder, similar to that used for Aczol. The tank is first evacuated for 30 minutes, then the heated solution is admitted at a temperature of 70°C. and the pressure raised to 5 atmospheres. After two hours the surplus liquid is drawn off, the tank is again evacuated and then the pressure is once more put on (without adding liquid) before the timber is taken out. The treated timber is used in the mines only in passageways where untreated timbers are subject to decay and last only one or two years. The impregnated timber is said to last ten years. This timber treatment method is reported to be used in other parts of Germany. In Upper Silesia, copper sulphate is used to some extent for treatment of timber situated in places in the mines where timber is likely to decay. Untreated timber lasts only from 6 months to a year, but that treated with copper sulphate was said to last 5 years or more.

In Poland, at one of the largest collieries hydraulic sand filling is employed and, as a result, many of the haulage ways are wet, causing decay of untreated timber. Copper sulphate is used for treating timber for these wet roads. The method is to treat in an open tank for four hours with a solution at 100°C. No fungus was observed on the treated timbers in the mine.

MINE TIMBERING SERIOUS AND COSTLY PROBLEM

Anthracite Coal Operators Spend $10,000,000 Annually In Timber Replacement—Metal Mines Substituting Concrete Wherever Possible — Reforestation Important—United States Forest Service Mailing Questionnaire On Mine Timbers To Mining Industry

TWO major problems face the mining industry in solving its mine timber supply. The first is the discovery of a method that will adequately preserve and protect the timbers now in use, the second, reforestation. The timber supply is rapidly diminishing in many mining sections and the attendant cost is causing mine operators great concern. In the anthracite coal industry alone more than $10,000,000 per year is required to purchase timber for mining operations. Much of this timber must be replaced within two years after installation. It has been estimated that the amount of timber required for this industry alone would cause annually the destruction of a forest of more than 500,000 trees of more than 1,000 board feet per tree.

In the West where timber is scarce and in sections of the iron mining district of the country, timbers are now being brought in from great distances at tremendous expense. It is therefore apparent that an efficient and economical method of preserving mine timbers will be a great boon to the mining industry. In the bituminous coal industry, operators are finding their timber cost increasing and the quality of available material so much less desirable that they are faced with the absolute necessity of substituting concrete and steel. The subject is one that is of like interest to every branch of the mining industry.

The Mine Timbering Section of the Standardization Division of the American Mining Congress has been giving this subject serious consideration for the past two years. In a report to the Fourth National Standardization Conference, John R. Sharp, chairman of the Sub-Committee on General Mine Timbering of the Mine Timbering Section, Standardization Division, pointed out that in a survey of the general mine timbering question, information was gathered covering conditions in 15 states. His report recommends the use of white oak, black oak, red oak and chestnut as given preference, in order named, for general use in mine timbering. The use of oak is recommended as being most suitable for mine timbers where it can be secured at anything like competitive prices as against other hardwoods, such as hickory, red elm, maple or hemlock. In some south-

ern and western states, spruce, fir and pine are extensively used, but in such localities the different varieties of oak are not often obtainable. This committee also makes the following recommendations:

METHOD OF STORING MINE TIMBERS

All timbers should be systematically piled on stringers parallel with the track or roadway and in such a manner as to insure a free circulation of air through the pile and on all sides and at the same time permit ready access for handling to the mine or mine car. Barking of timbers is not recommended unless they are to be afterwards treated.

In round props the diameter should be not less than 1 inch for each foot in length. In split props the cross sectional area should be nearly equal to that of a round prop of the same length. Bars and legs not over 8 feet in length may be 6 inches in diameter at the small end and a 10 or 12-foot bar not less than 8 inches at the small end. Cut pieces either sawed or split should be not less than 1½ inches in thickness, at least three times as long as the diameter and wide enough to cover the prop.

We recommend the use of timber sets as shown in cut No. 1. This set can be framed with an axe or adz with very little labor. In this method neither the cross bar nor the leg is weakened or subject to splitting from side or top pressure. The batter given to the legs should be governed by the nature of the bottom on which they will set. With a hard bottom little batter is needed, while with a soft bottom which will give the rib an opportunity to exert side pressure a batter up to that shown in the cut can be advantageously used.

STANDARD METHOD OF TIMBERING WORKING PLACES OR ROOMS

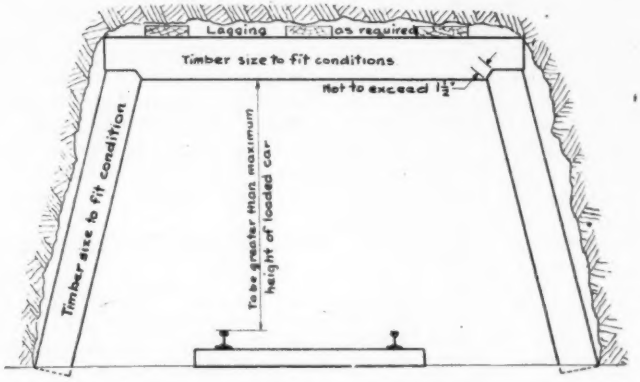
This committee does not recommend a standard method of timbering working places, although some large operators are practicing this with more or less success. The roof conditions are too varied in the different fields and at times even in the same mine to permit such practice being economical and practical. Roof conditions should govern and sufficient timbers used to insure safety to both the miner and the working place—bearing in mind that timbering is not only intended to keep up a bad roof but to prevent a good roof from getting bad.

TIMBER SUPPLY AND COST

The local supply that can be delivered by team is rapidly becoming a thing of the past, except in a few favored localities. The freight on timber delivered by rail averages over 30 percent of the cost f. o. b. the mine, and in some instances as much as 50 percent. This committee feels that reforesting should be practiced in districts where the country is not suited to farming. Some large operating companies report as much as two feet board measure and two prop feet of timbers per ton of coal mined, mostly consisting of room ties, car lumber, brattice and straight mine timbers. The amount used will vary a great deal in the different fields and is being largely eliminated in some mines by the use of steel ties, gunite, and steel timbering.

The answers to this question were so varied that a study of the causes is well worth while. Reports covering the same grade of timbers gave a length of life all the way from two years to ten years. This brought out the fact that a perfectly dry, well ventilated mine will show the longest life, while a mine that is poorly ventilated and alternately wet and dry gives the shortest life, with the mine which is wet all the time and properly ventilated, between the two. High temperatures have considerable bearing on the life of mine timbers in place, but this is quite often the result of insufficient ventilation. This committee recommends ample ventilation as adding greatly to the life of mine timbers in place.

This practice is economical only when the cost of drawing timbers is considerably less than the cost of new timbers delivered at the same point in the mine, and because of the danger to the employe we do not advocate the practice unless in extreme cases. There is a post puller in the market that partially eliminates the danger to the operator, but this is also a factor to be reckoned with in counting the cost of recovering timbers from working places.


Lagging as required
Timber size to fit conditions
Not to exceed 1½"
Timber size to fit condition
To be greater than maximum height of loaded car

CUT NO. 1. *Timbering in Roadways and Permanent Air Courses*

SIZES OF TIES RECOMMENDED FOR STEEL RAILS FROM 16 TO 60 POUNDS PER YARD

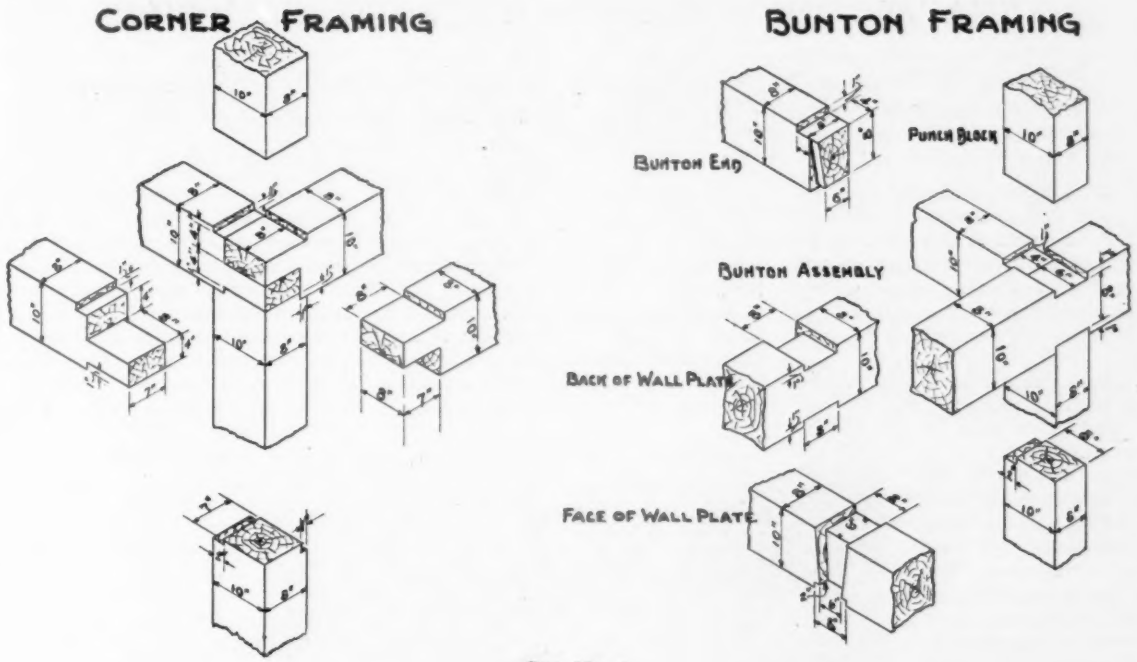
16 lbs. to 25 lbs., 4″ by 5″.
25 lbs. to 40 lbs., 4″ by 6″.
40 lbs. to 60 lbs., 5″ by 6″, or 6″ by 6″.

Ties in each instance to be not less than 12″ longer than the track gauge.

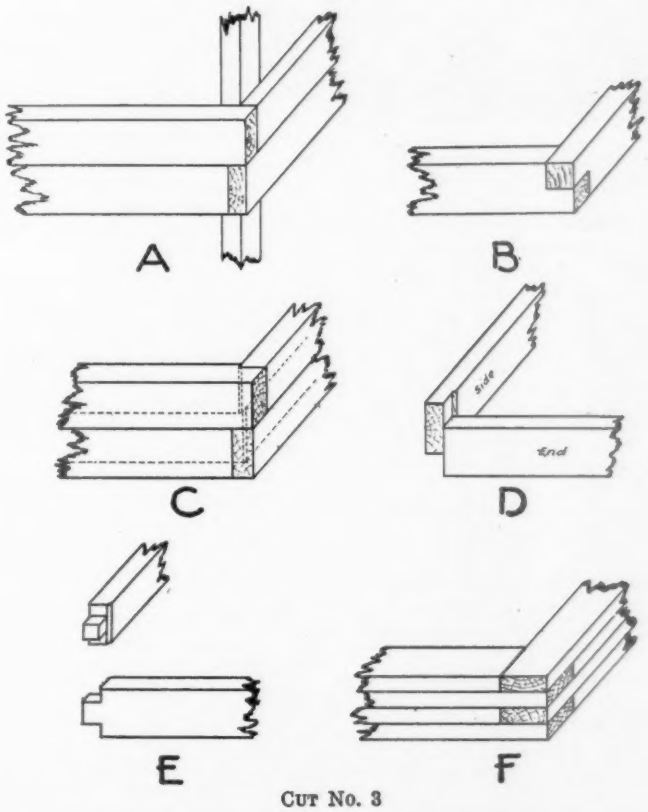
The following table (cut No. 2) gives

Kind of Timber	Weight in lbs. per cu. ft. Dry	Strength in lbs. per square inch.					
		Tension	Compression		Bending Modulus of Rupture	Shear	
			With the Grain	Across the Grain		With the Grain	Across the Grain
Pine—Short Leaf.....	38.40	5,000 to 10,000	4,000 to 9,000	900 to 1,000	6,000 to 12,400	400 to 700	4,000 to 5,000
Poplar.....	30.00	7,000	4,000 to 5,700	.....	.....	.....	4,418
Redwood—Calif.....	26.23	7,000 to 10,850	3,000 to 4,000	800	4,500	400	.....
Spruce—Black	28.57	5,000 to 19,500	4,000 to 7,850	700	4,000 to 12,000	250 to 400	3,255
Spruce—White.....	25.25	5,000 to 19,500	4,000 to 7,850	700	4,000 to 12,000	250 to 400	3,255
Walnut—White.....	25.46	.....	5,000 to 6,800	.....	.....	.....	2,830
Walnut—Black.....	38.11	9,000 to 16,000	7,500	.....	.....	.....	4,728

CUT NO. 2



CUT No. 4



CUT No. 3

strength data for various American woods. This table, which is taken from Kidder and Nolan's Handbook (1916 edition), is said to give ranges of strength which may reasonably be expected from the different species. The higher values for each specie are said to be from wood containing 15 percent to 20 percent moisture; that is, practically seasoned. The values are not intended to be taken as safe loading factors.

The Forest Products Laboratory at Madison, Wis., has published the results of thousands of strength tests in Department of Agriculture Bulletin 556, "The Mechanical Properties of Woods Grown in the United States," which may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 10 cents(stamps not accepted). Various technical notes on the strength and other properties of timber may be had free of charge upon application to the Forest Products Laboratory.

This committee does not wish to go on record as recommending the use of timbers for shaft lining, except in shallow or temporary shafts. State laws have been passed compelling the use of concrete or other fireproof lining in mine shafts, and we look for further legislation in this direction in the near future. However, when it is desired to line a shaft with timber, cut No. 3 shows several different methods of joining at the corners, in all of which the timbers are laid skin to skin. This method is only applicable to shallow shafts. When a deep shaft is to be lined with timbers this committee recommends the method shown on cut No. 4. The sets are spaced according to the nature of the ground through which the shaft is being sunk by means of punch blocks spaced according to nature of ground, filling in between the sets with two or three-inch lagging nailed to the sets and closely filled in behind. The cut will also illustrate the manner in which buntons and guides should be set. No. 1 white oak is recommended for this work, but, owing to the scarcity of this grade, No. 1 long leaf yellow pine or Douglas fir may be substituted.

TREATING MINE TIMBERS WITH PRESERVATIVES

Practice Of Treating Mine Timbers With Preservatives Making Progress—Mining Companies Erecting Open Tank Plants And Using Hot And Cold Bath Method Of Treatment—Process Not Expensive

By GEORGE M. HUNT *

THE practice of treating mine timbers with preservatives is making some progress, although it is not as rapid as might be desired, or as may be expected when mine operators become better acquainted with the various wood preservatives and the methods of using them.

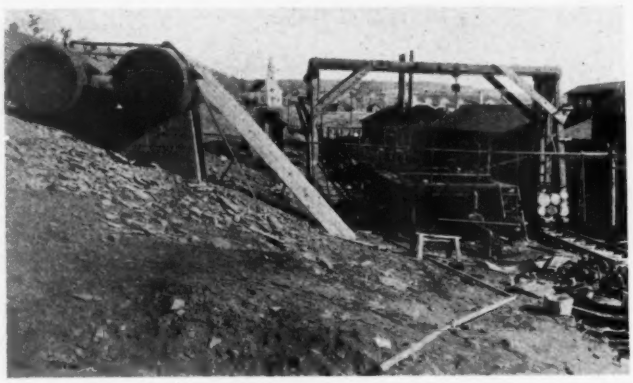
At least three mining companies have begun to treat timber during the past year, and there may be others of which the committee has not heard. All three have erected open tank plants and are using the hot and cold bath method of treatment. None of the plants are expensive, yet with proper supervision and operation they are capable of doing excellent work and producing a large amount of treated timber per year.

For about two years the Hillman Coal and Coke Company has been brush treating or dipping its ties and timbers in a creosote oil, sold under the name of "Protexol." In an experiment begun in 1914 this company obtained a considerable increase in life by this method, and it has now become its standard practice. A sketch of the dipping plant is attached. Their large timbers are kept in the bath for about 20 to 30 minutes.

The Chicago, Wilmington and Franklin Coal Company has erected a plant at Orient, Ill., consisting of three concrete tanks about 25 feet long, 5 feet wide and 6 feet deep. One of these tanks is used for the hot bath, one for the cold bath and one for oil storage. The timbers are handled in and out of the tanks on tram cars and the end of each tank is extended about 25 feet on a slope to provide for the track. The details of the plant layout are shown in the accompanying sketches.

This plant is reported to have cost $7,000 to date, exclusive of siding and yard layout. Each treating tank will hold an average of about 140 5-inch by 6-inch by 6-foot mine ties. Between January 1 and August 1, 1923, the plant has run only about half time, but has treated 26,734 cubic feet of timber, including mine ties, standard ties, switch ties, round timber and cross arms for a power line.

Most of the timber treated is oak, but some beech, elm, ash, sycamore, hickory and gum are treated. On such charges as have been weighed before and after treatment the absorption has averaged about one gallon of creosote per cubic foot. The penetration has ranged from one-half inch to skin deep on the sides and much deeper on the ends.



Mine Timber Treating Plant of the Colorado Fuel and Iron Company, Primero, Colorado

Four men are normally required to operate the plant and yard. The treatment now being given to mine ties and light timbers is four hours' heating at 200 degrees Fahrenheit and four hours' cooling in the same oil. Large ties and heavy timbers are treated over night; a total of 12 hours.

The cost of treatment to date has averaged about 31 cents per cubic foot. This figure includes some overhead, but nothing for depreciation. It is believed by the management that this figure can be reduced by certain improvements which are planned. Even if the figure is not reduced, however, it will probably be much less than the value of the increased life obtained. It is stated that the treatment has added about 100 percent to the cost of the mine ties. If the life is only doubled, the extra cost will have been covered and the cost of resetting the ties once will have been eliminated. A life of more than double is to be expected.

The Cleveland Cliffs Iron Company has erected a small plant at the Athens Mine, Negaunee, Mich., for treating its mine timbers with zinc chloride. The plant is constructed of old boilers about 6 feet in diameter and 20 feet long. The two treating tanks are set on end and the two working tanks and drain tanks are set horizontally below them. A mixing tank for preparing the zinc chloride solution is placed on the side hill above the treating tanks. The treating solution is handled from one tank to another by gravity or by compressed air as required. The timbers are handled into and out of the tanks singly by means of an air-operated hoist, but it is planned to construct cages by means of which a whole charge of timber can be hoisted at once. This will reduce the amount of labor required. This plant is still in the developmental stage, and it is expected that various improvements will be made from time to time both in the plant itself and in the method of preparing and handling the timber. In its present condition, however, the plant is capable of treating a large amount of timber and doing it effectively, although its cost has been comparatively little.

At Primero, Colo., the Colorado Fuel and Iron Company has erected an open-tank plant for creosoting its mine timbers. The general design and layout of the plant are shown in the accompanying photograph. The tanks are each 22 feet long, 5 feet high and 4 feet 3 inches wide, inside dimensions. The wall between the two tanks is only 4 feet high. This allows the oil to overflow from one tank to the other without overflowing the outside walls. The tanks are made of 16-gauge galvanized iron, with electrically welded joints, and are set into tight-fitting wooden boxes made of 3-inch planks. The total cost of the complete plant and equipment was $6,000.

The timber to be treated is loaded into "cages" or "crates" and handled from the yard to the treating tanks on cars. A chain hoist handles the charge into and out of the tanks. Each cage holds at least 3 full sets of timber (9 pieces) or 36 mine ties, and each tank holds two cages. It is possible therefore to treat 72 ties or at least 18 pieces of mine timber at a charge.

Statistics on treatments for 3 months are given on following page:

* Forest Products Laboratory, U. S. Forest Service, Madison, Wis.

Month	Timber treated lin. ft.	Amt. of creosote used gal.	Cost of treatment per lin. ft.	Remarks
May ...	4,000	560	.08	Timbers 10" to 14" diam.
June ..	6,117	660	...	228 sets of timber, 137 sawed ties.
Aug. ..	4,321	500	.07	187 sets of timber and a few trolley poles

The standard practice of the company is to thoroughly peel and season the timber before treatment, as experience has shown that this gives the best results and requires shorter time. Some green pine and fir have been treated, but the seasoned material is much preferred. The timber is always framed before treatment. The species usually treated are Alpine fir, Colorado pine and red spruce.

The treatment is varied according to the size of the timbers and the difficulty of treatment. A hot bath in oil at about 200 degrees Fahrenheit for one hour is given to seasoned pine, followed by a short bath in oil at 50 degrees to 100 degrees Fahrenheit. A hot bath of about 6 hours is given to green timber, followed by a cooling bath until the temperature of the oil drops to between 50 degrees and 100 degrees Fahrenheit. The penetration of oil ranges from ⅛ inch to ½ inch, depending upon the character of the wood, best penetration being secured in the seasoned pine. Only one man is required to operate the plant.

In general, it is said that the total cost of treatment is about the same as the first cost of the timber, so that a treated set ready to go into the mine costs about twice as much as an untreated set. The cost of installing an untreated set is approximately equal to the cost of the material. The untreated timber, in the places where the treated material is now being used, averages about two years' life. The company expects the treated material to last at least 8 years. If this is realized there will be a saving of 3 sets of timber and the cost of 3 replacements every 8 years for each set of treated timber used. If the treatment merely doubled the life of the timber, the total cost of timber used would be the same whether treated or untreated timber was used, but the use of the treated material would save the cost of one replacement which is an important item.

The company is dating all its regularly treated timbers to show the date of installation and is also making some experiments in which the life of untreated timber is being directly compared with that of timber treated with various preservatives. In this way the company will be able in a few years to estimate very closely the economy of using treated timbers, and to determine which preservative or treatment gives them the greatest satisfaction.

It is to be noted that this company is not waiting for the completion of its experiments before adopting treatment as regular practice. It has adopted for regular use materials and methods which have given good results elsewhere and at the same time is conducting experiments with a view to improving their practice in the future if that is found possible. In view of the great amount of information already available the committee believes that this is the logical thing to do.

The company has so much confidence in the treatment now being used that it contemplates the addition of two more treating tanks to the present plant, as well as the erection of a new plant at another mine.

Timber Preservatives and Specifications

The committee wishes to emphasize the fact there are preservatives whose value has been established through long usage and which are not subject to proprietary rights. The standard water soluble preservative is zinc chloride and the standard preservative oil is coal-tar creosote.

Zinc Chloride

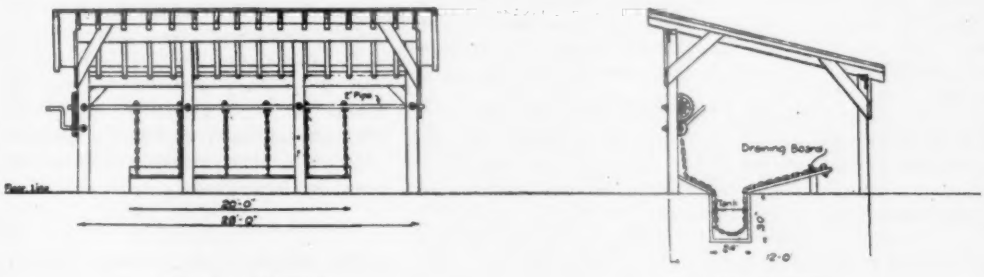
The American Wood Preservers' Association, after considerable study, has adopted the following specification for zinc chloride:

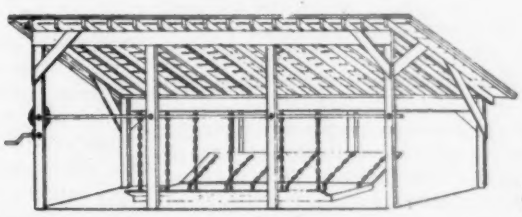
American Wood Preservers' Association Standard Specification for Zinc Chloride

"The zinc chloride shall be acid free and shall not contain more than 0.1 percent iron. Fused or solid zinc chloride shall contain at least 94 percent chloride of zinc. Concentrated zinc chloride shall contain at least 50 percent chloride of zinc."

This specification is in use throughout the country for the purchase of zinc chloride for wood-preserving purposes.

Dipping Tank, Gibson Mine





Dipping Plant Used by Hillman Coal and Coke Company

Large consumers of creosote or creosoted wood usually purchase their creosote on specifications. This is the best way to insure receiving material of the desired quality and to have the quality the same in different shipments. A number of specifications prepared by different organizations are available for creosote oils of different kinds. The oil secured under most of them will probably be sufficiently effective in preventing decay. Some specifications are unnecessarily difficult to meet, and others are unnecessarily loose. The following specification of the American Wood Preservers' Association is in common use and will give satis-

factory results. Although the title of this specification refers only to ties and structural timbers, the oil is equally suitable for mine timbers. If the producer is unable to meet the requirements of this specification, it may be desirable to have him state what publicly known specification he can meet, and then determine whether the oil satisfying such specification is suitable.

American Wood Preservers' Association Standard Specification for Creosote, Oil for Ties and Structural Timber

1. The oil shall be a distillate of coal-gas tar or coke-oven tar. It shall comply with the following requirements:

2. It shall not contain more than 3 percent of water.

3. It shall not contain more than 0.5 percent of matter insoluble in benzol.

4. The specific gravity of the oil at 38 degrees compared with water at 15.5 degrees centigrade shall not be less than 1.03.

5. The distillate, based on water-free oil, shall be within the following limits:

Up to 210 degrees centigrade, not more than 5 percent.

Up to 235 degrees centigrade, not more than 25 percent.

6. The residue above 355 degrees centigrade, if it exceeds 5 percent, shall have a float-test of not more than 50 seconds at 70 degrees centigrade.

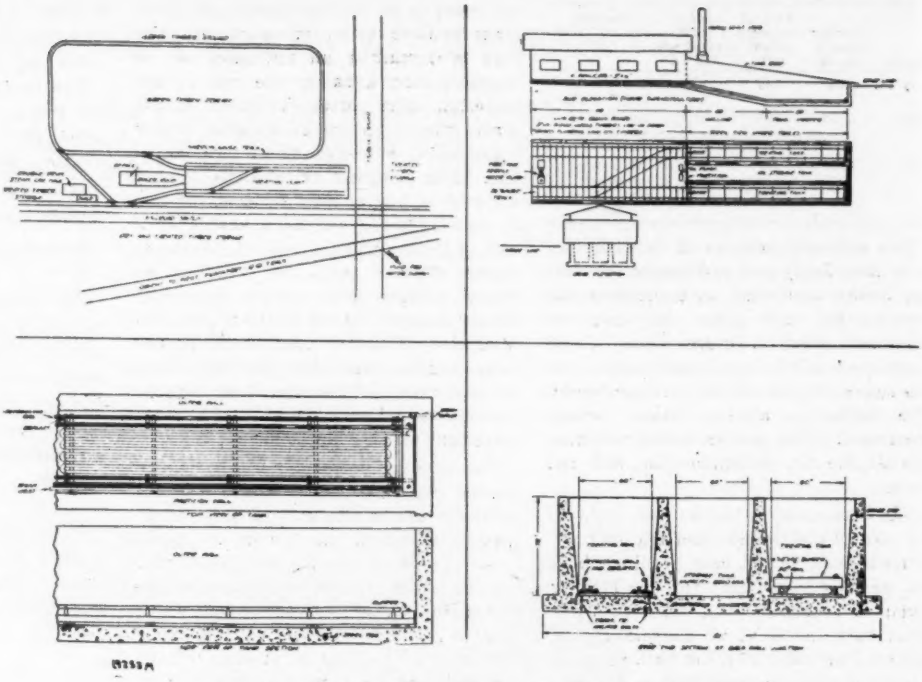
7. The oil shall yield not more than 2 percent coke residue.

8. The foregoing tests shall be made in accordance with the standard methods of the American Wood Preservers' Association.

NOTE.—Owing to the complexity of the chemical composition and physical properties of coal-tar creosote oil, and to the fact that some of the same compounds and properties which characterize coal-tar creosote are found in certain petroleum derivatives, the determination of the purity of creosote oil is difficult. When there is not certain assurance that the oil is a pure product, the following tests will aid in arriving at an opinion as to its coal-tar origin:

(a) Fraction distilling between 210 degrees and 235 degrees centigrade is usually solid or contains some solids when cooled to 25 degrees centigrade.

(b) All of the fractions up to 315 degrees centigrade contain tar acids in varying amounts, usually at least 1 per-



Creosoting Plant of the C. W. and F. Coal Co., Orient, Ill.

cent, calculated on the amount of the fraction tested.

(c) The specific gravity of the fraction between 235 degrees and 315 degrees centigrade is usually not lower than 1.025, and specific gravity of the fraction between 315 degrees and 355 degrees centigrade is usually not lower than 1.085 at 38 degrees centigrade, compared with water at 15.5 degrees centigrade. However, some pure coal-tar distillates fall slightly below these limits.

If the oil does not comply with at least one of the foregoing tests it is undoubtedly not a pure coal-tar creosote.

PROPRIETARY PRESERVATIVES

There are many preservatives sold under trade names of various kinds. Some of them are ordinary coal-tar creosote or coal-tar creosote which has been modified somewhat by taking out some of the solid ingredients. Some of them have had the lighter fractions removed, making them higher boiling than the ordinary run of creosote. In the main, preservatives thus derived from coal-tar creosote are good preservatives and may be used with assurance. Whether it is economical to use them depends upon their cost as compared to the cost of coal-tar creosote or zinc chloride.

There are other proprietary preservatives containing wood-tar products or other oils. The value of these is not so well established, but no doubt some of them have value. In a third group are preservatives made of water soluble salts in various mixtures. Whether or not these are good depends upon the materials of which they are composed. Before buying a preservative of this kind the purchaser should insist upon knowing its ingredients and their proportions. It is unnecessary and unwise to invest money in secret preservatives.

The literature exploiting some of the proprietary preservatives not infrequently contains extravagant claims as to their properties and their effectiveness. Obviously such claims should be greatly discounted. As a general rule, it may be said that there are very few, if any, proprietary preservatives that are better or more generally satisfactory than straight coal-tar creosote and zinc chloride in their respective classes and none that are cheaper.

RECENT PUBLICATIONS

The United States Forest Products' Laboratory at Madison, Wis., has recently prepared a mimeograph entitled "Wood Preservatives" which discusses the advantages and disadvantages of various wood-preserving materials. A companion mimeograph entitled "Methods of Applying Wood Preservatives" discusses several methods of treating timber and their respective advantages. These articles were prepared largely for the information of mine operators, but they are too long to reproduce in this report. Copies may be secured without charge from the Forest Products' Laboratory.

The Relative Durability of Different Species

The relative durability of different species of wood when used under the same conditions is a matter of considerable economic importance, yet it is an exceedingly difficult thing to get at. The actual life of timber in any position is influenced so much by the moisture, temperature, soil conditions and ventilation, as well as by the species and the proportion of heartwood and sapwod in the stick that it is practically impossible to get a large number of timbers and species in use at one time under comparable conditions. The result is that general averages and experience must be depended upon and durability cannot be foretold with accuracy. The evidence available from service records sometimes is conflicting because of the hidden effect of one or more of these factors.

In spite of the difficulty of stating relative durability with any degree of accuracy, there is a constant demand for such information, and in order to supply it as nearly as conditions permit the Forest Products' Laboratory has compiled the following table. In working up these estimates the laboratory has made use of service records where such are available, but where no records can be found the estimates are based upon a consideration of the other known properties of the species in question, its similarity to species of known durability and the general reputation it bears Obviously, the estimates are subject to correction as more definite records become available. The estimates are given in percentages, taking white oak as 100 percent. To state the number of years' service to be expected is a practical impossibility because conditions of service vary so widely. Since the table was prepared for general use, it contains some species not likely to be used for mine timbers.

Relative Durability (Resistance to Decay) of Untreated Woods

Durability of Commercial White Oak Taken as 100 Percent

Conifers	
Cedar, eastern red (juniper)	150-200
Cedar, southern white	80-100
Cedar, other species	125-175
Cypress, bald	125-175
Douglas fir (dense)	75-100
Douglas fir (average mill run)	75-85
Fir (the true firs)	25-35
Hemlock	35-55
Larch, western	75-85
Pine, jack	35-45
Pine, longleaf, slash (Cuban)	75-100
Pine, Norway	45-60
Pine, pitch, sugar	45-55
Pine, shortleaf	60-80
Pine, southern yellow (dense)	80-100
Pine, western white	65-80
Pine, white	70-90
Pine, western yellow, pond, loblolly, lodgepole	35-50
Redwood	125-175
Spruce, Engelman, red, Sitka, white	35-50
Tamarack	75-85
Yew, Pacific (western)	170
Hardwoods	
Ash	40-55
Aspen	25-35
Basswood	30-40
Beech	40-50
Birch	35-50
Butternut	50-70
Catalpa	125-175
Chestnut	100-120
Cottonwood	30-40
Elder, pale	25-35
Elm, cork (rock), slippery	65-75
Elm, white	50-70
Gum, black, cotton (tupelo)	30-50
Gum, red	65-75
Hickory	40-55
Locust, black	150-250
Locust, honey	80-100
Magnolia, evergreen	40-50
Maple	40-50
Mulberry, red	150-200
Oaks, red oak group	40-55
Oaks, white oak group	100
Oak, chestnut	70-90
Osage orange	200-300
Poplar, yellow	40-55
Sycamore	35-45
Walnut, black	100-120
Willow	30-40

Service Records on Mine Timbers

Very few accurate records are available upon the actual life of mine timbers either treated or untreated. The committee has nothing to add to the data published last year on page 189 of the Third Standardization Bulletin. The lack of such information makes it difficult to estimate the extent of the advantages which can be derived by using treated wood. The committee urges that this subject be given very careful consideration and recommends that all mine operators who are interested in the life of their timber take steps to secure data upon the service now being secured from timber in their properties. The life will vary with the species of timber and with the conditions under which it is used. It often varies widely in the same mine. Only careful observations and records will give authentic data. Guesses are likely to be very misleading.

As a means of increasing the interest in wood preservation and of providing more extensive information on the life of timber, the committee has a number of experiments to suggest. To many who have given the subject of wood preservation thorough study it seems that the time for experimenting is past and the thing to do is to make immediate use of the information now available from the results of past experiments and general experience with wood preservation. Others feel that experiments can still be made with profit by those who are not convinced of the value of treatment and that such experiments will be useful to the man who makes them in helping him decide which preservative or treatment most nearly meets his needs.

In each of the experiments suggested the treated timbers should be set up beside untreated timbers and a careful record kept of their relative lives. A record of the cost of the various treatments and of the untreated timbers should also be kept. A good way to do is to place alternate sets of treated and untreated timbers in a passageway where decay is known to be rapid, and where the timber will be needed for a period longer than its expected life. The experiments would not be of much value if made upon timbers in temporary locations which will be abandoned before the life of the timber has been determined. At least ten sets of each treatment, preferably more, should be used in order that the results may be averaged. Data from one timber or one set are unreliable and may be very misleading. The timbers should be numbered in order to simplify record keeping, and should be inspected frequently. The records should be very carefully kept as inadequate or incorrect records may ruin the experiment, or, even worse, lead to erroneous conclusions.

GOLD BASIS AFFECTED BY EXCHANGE FLUCTUATIONS

THE Senate Gold and Silver Commission has issued a report on its investigations of foreign currency and exchange, which was undertaken to determine the effect of depreciating and fluctuating currencies upon American industry and trade, and conditions in foreign countries. The report states that return to normal conditions in Europe is dependent upon restoration of sound currency systems and recognition of gold as a more satisfactory unit of currency. The report analyzes in great detail exchange quotations for 18 countries from November, 1918, to December, 1923. The report states that the gold standard, to which practically the entire world had turned before the war, has won its position through a long period of evolution and experimentation, and that only when financial systems are again predicated upon gold as a basis, can normal conditions be restored. "Americans are vitally interested in the restoration of the gold standard in Europe," the commission says. "Not until European countries return to a gold basis and provide sufficient means of maintaining it, can trade function to the greatest advantage and realize its fullest possibilities."

THE FUNDAMENTALS OF SHALE

Depression in Oil Industry Has Retarded Development of Oil Shale—Must Look to Shale for Future Oil Supply

DELOS D. POTTER
Denver, Colo.

DEVELOPMENTS in the shale industry during the past year have been somewhat retarded by the adverse conditions surrounding the oil business. However, the shales have suffered very little, compared to the oil wells.

In Colorado we have been patenting the lands and working out some of the problems which are of first importance. We believe that there is more occasion to make haste in the development of these properties than ever before, and that the outlook for the early utilization of shales is better than it has been at any time during the past seven or eight years, and since the shales have been given attention, following the realization of the fact that underground petroleum reserves were not inexhaustible.

The production of oil has constantly increased in the United States since the discovery of the first well in Pennsylvania in 1857. This has been possible only because of the constantly increasing consumption of petroleum products.

While production has fluctuated with a consequent variation in price, and economic disturbance of the oil business, consumption has steadily moved upward until the line of consumption in the United States crossed the line of production in the year 1922, in spite of the fact that we produced 500,000,000 barrels in that year. This necessitated imports, and resulted in a vigorous campaign of wild-catting, which in turn has caused a substantial over-production for the year 1923.

During the past year six great new fields have been opened, and these fields now provide over 40 percent of the total oil production of the United States. The opening of these great pools has been attended by an insane waste of the potential production of these fields.

While the great companies have moved forward sanely so far as they themselves were concerned, the fly-by-night wild-catting speculator has gathered in money of the widows and the orphans, and drilled a well wherever he could secure title to a tract of land large enough upon which to place a rig, regardless of whether any part of the money would ever be returned to the original investors. Needless to say that such methods will result in the subsiding of production of these fields much more rapidly than would be the case if the drilling in these fields could have been subjected to reasonable regulations, as is the case in the Burbank field, where the Indian lands are under government control.

The great campaign of wild-catting in 1922, and the early part of 1923, has resulted in the elimination of large areas of land which have been classified as potentially productive. More than 5,000 dry holes were drilled in the United States last year, and it is probable that the dead loss from the drilling of these dry holes and expenses incident thereto has approximated $75,000,000.

It now seems that we have reached the peak of production, and it is hardly to be expected that other great fields can be opened with anything like the output which we have at the present time. Production will again subside, and no doubt within a short time we will again be confronted with the fact that consumption of oil in the United States is more than we can produce.

The United States is now producing about 70 percent of all of the oil produced in the world, and at this rate the oil reserves in the United States will be exhausted in a comparatively short time, and we must either import oil from foreign fields or provide the shortage by the manufacture of the oil from shales. It is not believed that we have reached the high tide of consumption of petroleum products, and it seems quite likely that more and more oil will be required each year in the future, as it has in the past since 1857. Oil has become not a convenience or a luxury—it is of prime necessity, and unless we can maintain the production up to the point of consumption we will suffer serious economic reverses.

It would be impossible to defend ourselves in case of a war waged against us by the selfish and designing nations of the world without adequate reserves of oil, and it behooves those interested in the production and distribution of oil to look well to the future supply.

In Colorado alone we have 900,000 acres of oil shale land, with an oil content in beds of workable thickness amounting to 67,000,000,000 barrels, or an average of 75,000 barrels per acre. All business must of necessity follow the lines of least economic resistance, but the time is at hand when these great reserves of shale oil in the fields must be made available, or the economic development of the United States must cease.

Undoubtedly the development of these shales must be undertaken by the great organizations which have provided, and are now providing the oil resources upon which our economic life depends, and when the over-production subsides and these great organizations have the time and energy to again consider future supplies, we may expect that more attention will be given to the shales than at any time in the past.

For the reasons above stated it is evident that those of us who have been working with the shales for the past few years will find that the time has been only too short, and that we have been unable to do many of the things which might well have been done before the time of great need.

METAL MINING IN THE UNITED STATES IN 1923

(*Continued from page* 78)

mine, near Waldo, changed hands, a small mill was installed, and it is said that good ore was opened. The flurry in copper early in 1923 resulted in some development work on the Queen of Bronze and Cowboy mines, south of Waldo, which resulted in opening new ore bodies. Further development of these large copper deposits on the California-Oregon line will of necessity depend on the copper market, which at present writing is not all that could be desired.

South Dakota

Homestake Only Property Able to Continue Operation

The Homestake mine, at Lead, S. D., the largest gold producing mine in the United States, continued operations uninterruptedly in 1923, according to the Department of the Interior, as reported by C. W. Henderson, of the Geological Survey. Dividends were paid monthly. Because of the increased cost of mining, the Trojan mine was closed in February, 1923, after many years of operation. Placer operations contributed a small quantity of gold. The total metal production in South Dakota in 1923 was $6,319,000 in gold and 94,235 ounces of silver, as compared with $6,517,788 in gold and 118,760 ounces of silver in 1922.

Texas

The metal mines of Texas produced about 800,000 fine ounces of silver in 1923, according to the Department of the Interior, as reported by C. W. Henderson, of the Geological Survey. The Presidio mine, at Shafter, operated steadily since 1884, was the largest producer. Lead-silver ores were shipped from the Sierra Blanca district.

PROGRESS OF INDUSTRIAL STANDARDIZATION DURING 1923

Progress In Standardization Work Growing Rapidly—Mining Industry Among Leaders In Movement

By A. W. WHITNEY
Chairman, American Engineering Standards Committee

DURING the past year, industrial standardization has continued to develop as one of the most active and important phases of American industry. Progress has been made in the standardization of raw materials, manufacturing processes and finished products. This is equally true whether looked at from the point of view of the factory, of the industrial or technical association, or of a national movement.

A striking development is the increased systematic use of specifications in public purchases, notably in the federal and in several of the state governments. The National Association of Purchasing Agents and the National Council of Governmental Purchasing Agents are devoting much time and attention to the subject. At the direction of Mr. Hoover, the Department of Commerce is preparing to publish a "Dictionary of Specifications for Public Purchasers," which will make easily available information as to what specifications are in existence, to what classes of use they apply, and how they may be obtained.

The Federal Specifications Board has completed the second year of its activity. In this, the American Engineering Standards Committee has cooperated by obtaining criticisms from the various interested industries of proposed specifications of the Federal Government before the specifications are finally adopted by the Board. To date, the Board has adopted approximately ninety specifications, and the Committee has secured criticism of industry on about the same number. From these systematic efforts to bring governmental purchases in line with the best commercial practice, important economies both to industry and government are resulting.

The Division of Simplified Practice of the Department of Commerce continues to exert a most stimulating influence on the standardization movement, particularly in emphasizing the efficiency results of standardization to the business man.

Through the organization of the American Marine Standards Committee, work has been initiated in this important industry. Very little in this field has heretofore been done in this country, although very considerable activity has been going on for some time in Germany and Great Britain.

The most striking aspect of the movement for industrial standardization is the development of standardization on a national scale. More than 150 undertakings now have official status before the American Engineering Standards Committee, the national clearing house for standardization. Fifty standards have received final approval by the Committee, twenty-two of which were approved during 1923. The importance of the broadly democratic methods followed in this clearing-house work is receiving increasingly widespread recognition. In it all parties concerned with any standard, producers, consumers, and representatives of the public and government, participate (1) in deciding whether the work should be undertaken at all, (2) in formulating the standard, and (3) in its ultimate approval. Thus the industries are developing and using such standards as best fit their needs, without danger of such technical industrial matters becoming subject to legal enforcement or to governmental pressure. Is it not probable that many other of our important industrial problems will find their solutions by closely analogous methods?

In July, the second conference of the national industrial standardizing bodies was held in Switzerland, where thirteen of the more important industrial nations of Europe and America were represented. Important progress was made in developing cooperation between the various national bodies, particularly in regard to the early release to each other of information on work in progress. Information on the status of all projects in hand is now regularly interchanged between the various bodies. Provision was made for continuing the work of the conference on the many problems of common interest through a continuing loose-knit organization.

There are now national industrial standardizing organizations in sixteen countries: Australia, Austria, Belgium, Canada, Czechoslovakia, France, Germany, Great Britain, Holland, Hungary, Italy, Japan, Norway, Sweden, Switzerland, and the United States. Of these, the work in Great Britain, Germany, and the United States is the most extensive, as would be expected from the scale of the industrial development in these countries.

The extensive standardization work going on in Germany continues to present many interesting phases. Some of these were outlined in a recent bulletin of the American Engineering Standards Committee. Practically every important manufacturing concern in that country is actively engaged in the work, and more than a thousand companies have formal standardization organizations within their own works. Approximately 700 national German standards have been approved by the central national standardizing body. These are only standards in which several industries are concerned. Standardization engineering is now a recognized profession in Germany. Some of the consulting engineering firms specialize on standardization work. Through their work on trade catalogs, these consulting engineers, among other things, are introducing standardization into sales policies and sales organizations.

Of interest not only in its relation to international standardization, but also on account of its bearing on the use of specifications in foreign trade, is the resolution passed by the last conference of the Pan American Union, where it was decided "That a conference on standardization of specifications of materials, tools, machinery and supplies be held * * * with a view to reaching agreements which may be embodied in inter-American conventions on this subject." This projected movement will be watched with great interest by American industries.

Standardization continues to play a

THE Standardization Division of the American Mining Congress, after three years of intensive study, has submitted to the American Engineering Standards Committee tentative standards on Outside Coal Handling Equipment, Mine Drainage, Underground Power Transmission and Power Equipment, Underground Transportation, and Mine Ventilation, for both Coal and Metal Industries.

The Division is composed of 329 leading mine operators, mine engineers and manufacturers of mining equipment.

Its program includes elimination of waste, promotion of safety and efficiency in operation, and adoption of labor-saving cost-reducing equipment.

more and more important rôle in the activities of trade associations. The subject is treated at length in the book on "Trade Association Activities" issued by the Department of Commerce during the year. It is of more than passing interest that the Supreme Court in a recent decision in regard to trade association activities, explicitly recognized standardization as being in the public interest.

MINE RESCUE CONTEST

THE approval of Secretary Work of the Interior Department has been given to the designation of Huntington, W. Va., as the place for the holding of the Seventh International First-Aid and Mine-Rescue Contest in September, the exact date to be determined later.

The International First-Aid and Mine-Rescue Contests are held annually under the auspices of the Bureau of Mines, with the cooperation of the American National Red Cross, the National Safety Council, and various mine operators' associations and miners' organizations, with the object of furthering the work of training miners in first-aid and mine-rescue methods, and the consequent advanvcement of the cause of safety among the million miners of the United States. A feature of the meet will be the awarding of the Congressional medal, which is given annually to the team of miners adjudged to be most thoroughly skilled in first-aid and mine-rescue methods. In addition, various prizes offered by cooperating agencies are awarded. The bestowal of these prizes is based on the facility and efficiency displayed by the different teams in the solution of problems involving the performance of imaginary feats of rescue and resuscitation of miners overcome or entombed at mine disasters.

Another interesting feature of the meet will be the awarding of the medals offered annually by the Joseph A. Holmes Safety Association in commemoration of notable deeds of heroism performed by miners in succoring their comrades imperiled at mine fires and disasters. The selection of the individual miners to receive these medals will be made by the directors of the Joseph A. Holmes Safety Association in March.

It is anticipated that as many as 80 teams of trained miners, from 20 or more mining states, will compete in the contest. At the sixth contest held at Salt Lake City last year, 76 teams participated. Teams of trained miners from Mexico and Canada and representatives of Great Britain, France and Belgium have taken part in past meets. The first prize in the first-aid events at the 1923 contest was won by a team from the Anaconda Copper Mining Company, Great Falls, Mont. The first prize in the mine-rescue events was won by a team from the Benton, Ill., coal district.

MINES APPROPRIATIONS

IN reporting to the House the Interior Department appropriation bill for the year beginning July 1st next, the House Committee on Appropriations provides $1,890,700 for the Bureau of Mines, an increase of $121,000 over appropriations for the current year, but a decrease of $18,873 from the estimates. Detailed appropriations are provided for the new year as follows:

Investigating mine accidents, $350,000, decrease $43,000; operating mine rescue cars, $262,300, increase $51,300; purchase of an additional mine rescue car, $40,000; testing fuel, $138,280, increase $2,280; mineral mining investigations, including silver investigations, $128,360, increase $3,360; petroleum and natural gas investigations, $500,000, increase $95,000; oil, oil shale and gas work, $91,360, increase $11,360; maintenance of mining experiment stations, $200,000, increase $25,000; care of buildings and grounds at Pittsburgh, $57,400, increase $2,400; mining station and mine inspection in Alaska, $35,000. Payments to the states next year under the leasing act are estimated at $2,500,000.

For the Geological Survey, $1,642,760 is provided, a decrease of $27,430 from the current year and of $162,512 from the estimates. The detailed appropriations are:

Topographic surveys, $500,000; geologic surveys, $300,000; chemical and physical researches, $40,000; report of mineral resources, $125,000; investigation of mineral resources of Alaska, $75,000; gauging streams, $170,000; geologic maps, $110,000; and classification of lands, $250,000, the latter being $30,000 less than the current year.

Total appropriations recommended for the Interior Department are $261,727,965, which is $35,792,044 less than the current year and $10,341,366 less than the estimates.

For the General Land Office, $2,783,420 is recommended, which is $109,240 less than the current year and $187,020 less than the estimates. The detailed appropriations are: surveyors, general, $175,000; surveying public lands, $650,000, of which $50,000 may be used for oil and oil shale land surveys, decrease of $49,600; registers and receivers of land offices, $232,000, decrease $138,000; expenses of land offices, $330,000, decrease $35,000; projecting public lands, $460,000, decrease $25,000.

The Indian Bureau is given $50,000 for surveying and allotting reservations and $62,500 for supervision of oil and gas production on the Osage Reservation, Okla. For maintenance and operation of the Alaskan Railroad, $1,000,000 is provided, and $25,000 for operation of river steamers.

LARGE INCREASE IN OUTPUT OF COPPER IN 1923

THE smelter production of copper in 1923, according to the Department of the Interior, as determined by the Geological Survey from reports of the smelters showing the actual production for eleven months and the estimated production in December, was about 1,477,000,000 pounds, compared mith 950,000,000 pounds in 1922, an increase of slightly over 55 percent. The smelter production of copper for December, as estimated by the producing companies, was 132,000,000 pounds, or at the rate of about 1,584,000,000 pounds a year.

The production of new refined copper from domestic sources, determined similarly, was about 1,435,000,000 pounds, compared with 905,000,000 pounds in 1922. In 1923 the production of new refined copper from domestic and foreign sources plus the imports of refined copper amounted to about 2,118,000,000 pounds, compared with 1,359,000,000 pounds in 1922. In addition to the output of new refined copper about 130,000,000 pounds of secondary copper were produced at the refineries, compared with 146,000,000 pounds in 1922, so that the total output of refined copper was about 2,248,000,000 pounds in 1923 and 1,505,000,000 pounds in 1922.

The imports of copper in unmanufactured form during the first eleven months of 1923, according to the Bureau of Foreign and Domestic Commerce, amounted to 623,519,135 pounds, compared with 541,013,220 pounds during the entire year 1922 and 350,472,611 pounds in 1921. The exports for the first eleven months of 1923 amounted to 739,049,275 pounds, compared with 743,039,888 pounds during the entire year 1922. It is expected that figures showing the imports and exports in December will be available within a few days.

The stocks of refined copper in the hands of domestic refineries on December 31, 1923, as estimated by the refining companies were about 256,000,000 pounds, compared with 216,000,000 pounds on December 31, 1922. The stocks of blister copper and material in process of refining, in the hands of the smelters, in transit to refineries, and at refineries on December 31, 1923, were estimated by smelting and refining companies at about 490,000,000 pounds, compared with 361,000,000 pounds on December 31, 1922.

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APPLIANCES, ENGINEERING
The Lunkenheimer Co., Cincinnati, Ohio.

ARMATURES
General Electric Co., Schenectady, N. Y.

AUTOMATIC CAR CAGES
Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.

AUTOMATIC COAL SKIP
Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

AUTOMATIC (Mine Doors, Truck and Electric Switches)
American Mine Door Co., Canton, Ohio.

BAROMETERS
Taylor Instrument Companies, Rochester, N. Y.

BATTERIES (Storage, Gas Welding, Cutting, Dissolved Acetylene)
Prest-O Lite Co., 30 East 42nd St., New York City.

BATTERY-CHARGING EQUIPMENT
General Electric Co., Schenectady, N. Y.

BEARINGS (Roller)
Hyatt Roller Bearing Co., Harrison, N. J.

BELTING (Conveyor, Elevator, Transmission)
Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.

BELTING, SILENT CHAIN
Morse Chain Co., Ithaca, N. Y.

BINS (Coke and Coal)
Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.

BIT SHARPENERS
Denver Rock Drill Mfg. Co., Denver, Colo.
Ingersoll Rand Co., 11 Broadway, New York City.

BLASTING POWDER
Hercules Powder Co., 934 King St., Wilmington, Del.

BLASTING SUPPLIES
du Pont Powder Co., The E. I., Wilmington, Del.
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General Electric Co., Schenectady, N. Y.

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Ingersoll-Rand Co., 11 Broadway New York City.

BOILER MOUNTINGS
The Lunkenheimer Co., Cincinnati, Ohio.

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Allis-Chalmers Mfg. Co., Milwaukee, Wis. (feed pump).

BREAKERS (Construction and Machinery)
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BUCKETS (Elevator)
Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.

CABLES (Connectors and Guides)
American Mine Door Co., Canton, Ohio.

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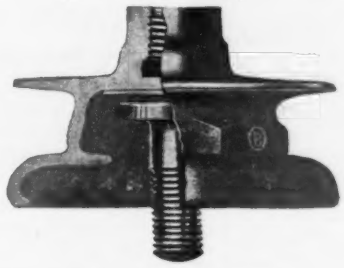

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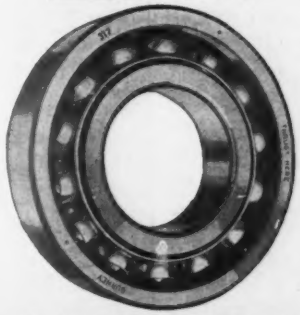

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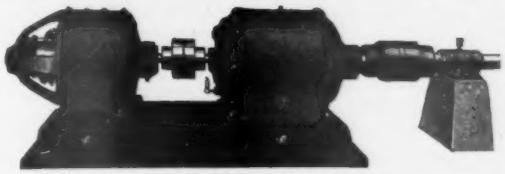

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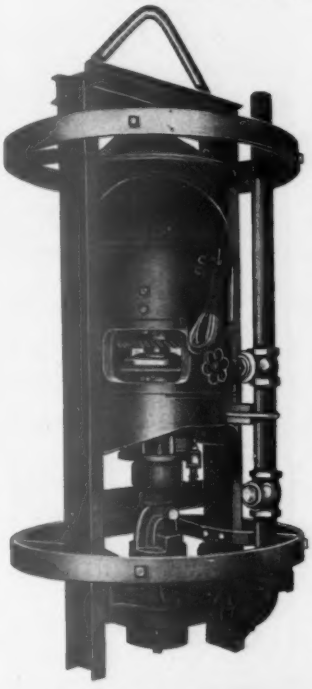

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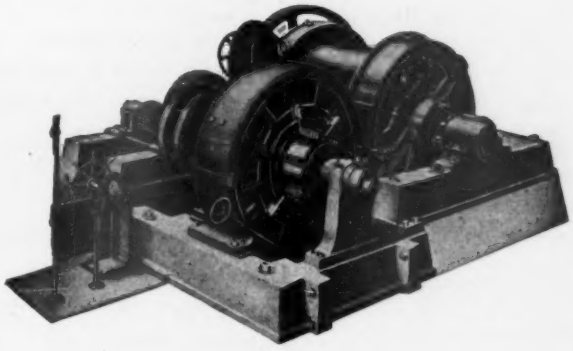

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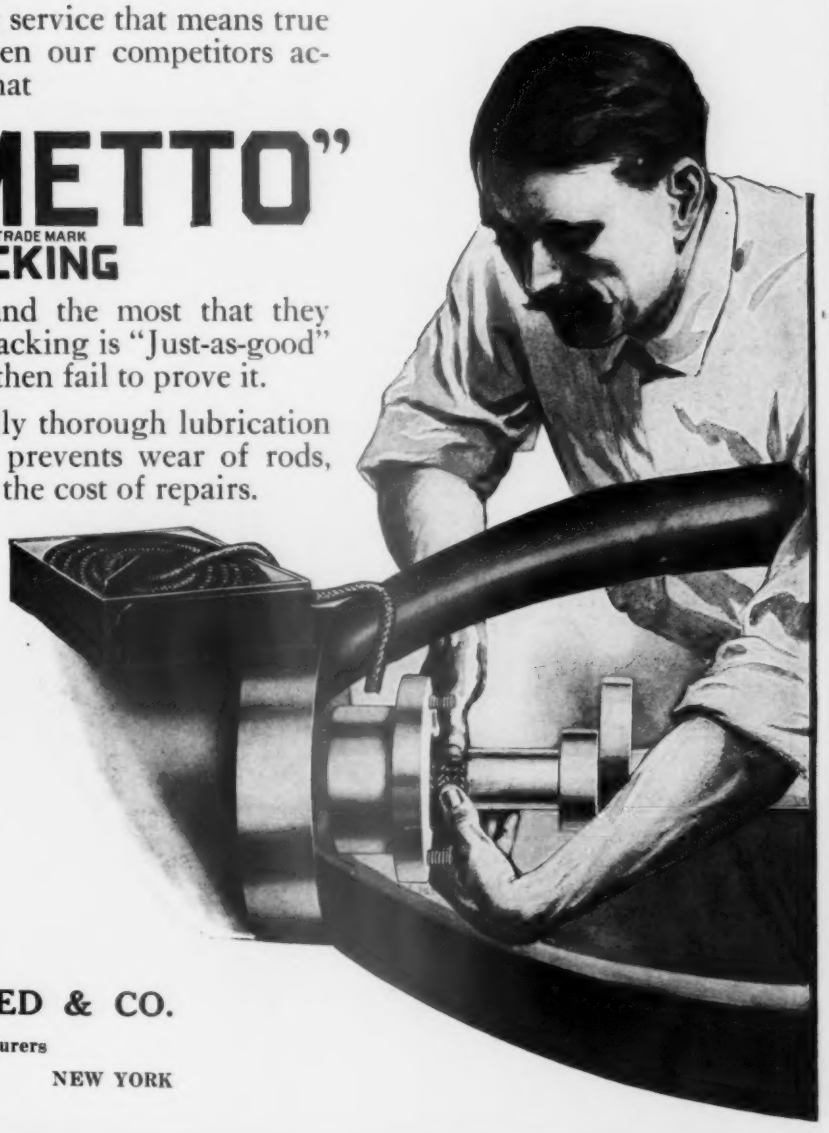

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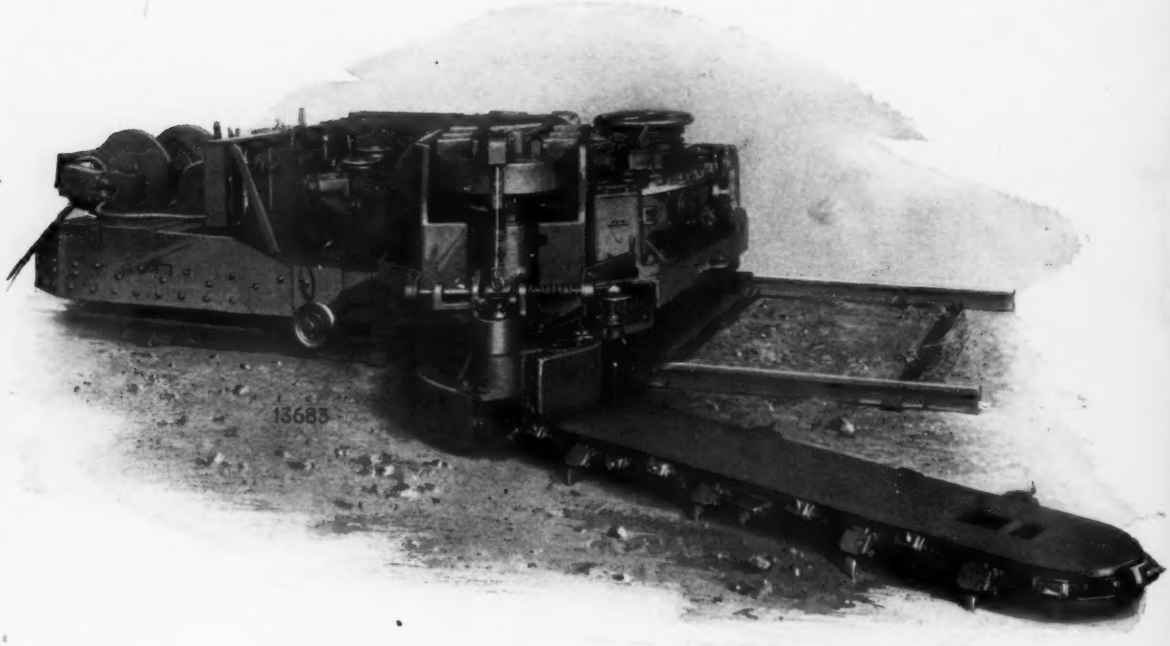

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